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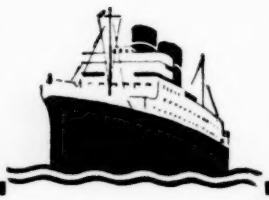

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CONSULTING OBSTETRIC PHYSICIAN TO CHARING CROSS HOSPITAL; PRESIDENT OF THE ROYAL SOCIETY OF MEDICINE.

I WANT to ask you to consider what are the infant's chances of surviving its birth, and what are the conditions which determine the risks which it runs in its passage from the mother to the state of independent existence. We ought not, as an American writer has expressed it, "to regard the infant as a by-product of the confinement," and so give it scant attention. No one will seek to question that the mother's interests are predominant, but it is incontestable also that our duty is to give the baby the best chance we can of coming successfully through the ordeal of birth. Let us recognise that what we clinicians call a normal confinement is a severe ordeal even to a normally developed child, which is squeezed by the uterine contractions, buffeted by the walls of the birth canal, semi-asphyxiated by interference with its placental circulation, to say nothing of the results of the attention so freely and often unnecessarily bestowed upon it by those who are awaiting its arrival. The ability of individual infants to withstand the buffeting of labour varies very much, and herein we find one of the most difficult of the problems I want to ask you to consider.

### Sources of Information.

We had better start by inquiring what are the available sources of information as to the extent of the infant mortality of birth? We can begin with the stillbirth-rate about which there is a good deal of information with regard both to our own and to foreign countries.

Our own stillbirth-rate, which was fairly steady at about 33 to 35 per 1000 births, has risen a little during the last three years, and in 1930 it reached 41. This may, however, be partly due to the returns having become more complete. The rate is lowest in the metropolitan boroughs and highest in the county boroughs, while the counties occupy an intermediate position. The county of Oxford has an exceptionally good record, and in even the bad year of 1930 it was only 29—i.e., 12 per 1000 below the national rate. In some of the large county boroughs it is nearly double that of the county of Oxford; Lancashire and South Wales have an unenviable record in this respect. A very careful and systematic inquiry by the League of Nations Health Organisation into a series of nearly 5000 combined stillbirths and neonatal deaths, the results of which were published in 1930,[1] showed that on the continent of Europe much wider fluctuations are to be found than in our own country, but in the average rate there is no great difference.

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| Year. | Gross rate. | Neonatal rate. | Proportion due to first four weeks. |
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| 1926 | 70 | 32 | 45·7 ,, ,, |
| 1927 | 70 | 32 | 45·7 ,, ,, |
| 1928 | 65 | 31 | 47·7 ,, ,, |
| 1929 | 74 | 33 | 47·3 ,, ,, |
| 1930 | 60 | 31 | 51·6 ,, ,, |

As compared with the period 1906–10 the gross rate in 1930 had fallen 42 per cent., while the neonatal rate had fallen only 22·5 per cent.

The high death-rate of the first four weeks of life is a matter of grave concern from every point of view; and especially because a considerable proportion of it is undoubtedly due to the results of obstetric trauma using that expression in its widest significance. There are, of course, many other causal factors to be considered, and these also were studied by the Health Organisation of the League of Nations. The possible effects upon both stillbirth and neonatal mortality of unfavourable economic conditions, and especially of inadequate public health services, were investigated, and were shown to be factors of secondary importance; the most definite conclusion to be found in the report is the following: "The inquiries have shown that a very large number of stillbirths and of deaths during the first days of life, are caused by obstetrical traumatisms."[1] If we are to form any approximate estimate of the amount of infant loss which is attributable to the birth process, it therefore follows that we must not overlook the fact that death from birth trauma does not necessarily take place immediately, but may be delayed for a few days after birth.

### Proportion of Risk due to the Birth Process.

In order to get anywhere near a correct estimate, we have to attempt to determine what proportion of stillbirths can be shown to be due essentially to the birth process, and what proportion of neonatal deaths are occasioned, directly or indirectly, by damage sustained during birth. This is extraordinarily difficult for two reasons among others:

(1) In a certain number of cases registered as stillbirths, the infants succumbed before labour began (antenatal death), and are therefore not attributable to the birth process. (2) In the case of neonatal deaths it is impossible without a complete autopsy, including expert examination of the brain, to exclude the presence of birth injuries.

The gross rates of the Registrar-General are therefore in neither case useful for our present purpose. The League of Nations report, to which I have already referred, is silent as to the proportion of registered stillbirths which are cases of death during labour (intranatal death); in their series of neonatal deaths, however, it appears that roughly 10 per cent. of these were registered as due to obstetric injuries. The number registered is certainly an underestimate, as so many fatal obstetric injuries are only recognised at autopsy, and death is attributed to some other cause. Almost the only sources of information on this point are the reports of our lying-in hospitals

* The annual address to the Oxford Medical Society, delivered on Nov. 13th, 1931.

and the results obtained by individual inquirers who have investigated a series of cases. Even these cannot be regarded as altogether reliable sources of average figures. Not all the hospitals reports give the information required, but from a careful examination of those which do give it, the conclusion may be drawn that at least 50 per cent. of the infants born dead are cases of antenatal death, the great majority showing "maceration"; the remainder are cases of intranatal death.

Owing to the high proportion of complex cases which these hospitals deal with the actual rate in both classes is no doubt also high. It is, however, possible to classify to some extent the cases of stillbirth in relation to the character of the labour, and this is of some assistance, because cases of dystocia and of antepartum hæmorrhage, and of grave maternal disorders such as toxæmia and cardiac diseases obviously increase greatly the risks to the child in labour.

If from the total number of stillbirths in a hospital are deducted first the infants born in a condition of maceration, and second those born in dystocia or in grave maternal disease, the difference will approximate pretty closely to the number of stillborn infants who died in birth as the direct result of the birth process and in the absence of grave complications. A not unfair estimate would appear to be that roughly 20 per cent. of the total stillbirth mortality of the lying-in hospitals occurs under such uncomplicated obstetric conditions, and is therefore attributable directly to birth trauma, using that term in its widest significance. The two conditions in this group which most often lead to fœtal disaster are breech presentation and occipito-posterior presentation of the vertex.

### EXPERIENCE OF MATERNITY HOSPITALS.

In consequence of this high proportion of abnormal cases the stillbirth-rate of most of the maternity hospitals is at least double the national rate. A nearer approach to average conditions is to be found in the out-patient maternity practice of these hospitals. For our present purpose the returns of the East End Maternity Hospital give the most useful information because they include only a negligible number of emergency cases. Practically all the cases have been under the care of the hospital during the antenatal period. Rather more than half are delivered in hospital, the remainder in their own homes.

In the return, comprising over 10,000 cases, recently published by Dr. Oxley,[2] medical officer to this hospital, it is shown that in the case of primiparæ not more than from 12 to 13 per cent. are delivered in their own homes, the remainder are admitted to hospital. The conditions which obtain are therefore to be regarded as approximating, as nearly as can be, to average conditions over the country as a whole. From this report it is seen that over the period under review the stillbirth-rate was 27 per 1000 births, a figure corresponding closely to that of the metropolitan boroughs generally. The view is expressed by the author of the report that 15 per cent. of the stillbirth mortality would be "preventable by good midwifery." The neonatal death-rate in the same period was only 13 per 1000 births, a figure which compares very favourably with the national rate. Inasmuch as very few of the patients remained under observation for more than 14 days, some infant deaths may have been missed. The error would probably be very small, for there is reason to believe that roughly 70 per cent. of the neonatal death-rate occurs in the first week, and over 20 per cent. in the second week.

The conclusion to be drawn from the data published by this hospital is that careful organisation and antenatal supervision have exerted little effect on the stillbirth-rate. The lowering of the neonatal death-rate is, however, a very encouraging result of the conservative methods of delivery encouraged by this hospital.

It is possible at this point to put forward the tentative suggestion that of the total stillbirth-rate as disclosed in hospital reports, antenatal deaths account for at least 50 per cent.; deaths in serious obstetric complications for 30 per cent.; and the remaining 20 per cent. occur in the absence of serious birth complications, either maternal or fœtal. The matter can be carried one step further, for the East End Maternity Hospital Report for 1930 contains the statement that six infants out of 1423 births died during "normal labour." One of these was born before the mother's arrival in hospital, and if this case is excluded it follows that in that year there was a stillbirth mortality in normal labour of 3·5 per 1000; as the gross stillbirth-rate for the hospital in that year was 32 per 1000, it would appear that nearly 10 per cent. of it resulted from normal labour. Of course no general conclusion can be drawn from such small numbers, or from the experience of a single unit, and there are no parallel statistics to be found in the reports of other hospitals. There is, however, abundant evidence of another kind that a certain amount of infant loss occurs everywhere from uncomplicated labour, the extent of which it is impossible to define.

### RISKS OF UNCOMPLICATED LABOUR.

Thus one hospital in a certain period reported a series of "603 spontaneous and uncomplicated vertex deliveries," and the stillbirth-rate in this series was 4·79 per cent., a figure considerably above the highest point reached by the national stillbirth-rate, and equivalent to about one-third of the total stillbirth-rate of this hospital. This series no doubt included an unspecified number of premature births, but there must be among them a considerable number of normal full-time infants who succumbed to the effects of uncomplicated labour.

The systematic study of birth injuries confirms the view that intranatal death is by no means confined to difficult obstetric conditions. Ehrenfest in his standard work on the subject says[3]: "Practically without exception every known type of parturitional trauma has been observed subsequent to spontaneous labour." Speaking for his own country (U.S.A.), this author further believes that there is a "steady increase in birth injuries from the pronounced modern trend of operative midwifery." These statements are by no means isolated. Fahmy and Crowe have reported[4] the results of the post-mortem examination of 248 stillborn infants from the Edinburgh Maternity Hospital.

They described 11 cases of intracranial hæmorrhage in full-term infants spontaneously delivered; in 7 of these "there was no disproportion and the labours were easy." Again, 15 infants spontaneously delivered died of asphyxia; 2 were associated with antepartum hæmorrhage, 5 with eclampsia, and 1 with a flat pelvis. Excluding these there remain 7 infants stillborn from asphyxia in uncomplicated labour. They further report that out of 16 neonatal deaths in spontaneously born full-term infants, 7 were the result of intracranial bleeding, and in each case "the labour was easy, the longest lasting only 18 hours."

There can be no reasonable doubt that the loss of the infant under approximately normal obstetric conditions is a not uncommon occurrence, although it is not possible to form an estimate of its actual frequency.

### BREECH CASES.

The great bulk of the fœtal mortality of uncomplicated labour no doubt occurs in breech cases, and in cases of forceps delivery. Gibberd,[5] who studied the results of breech cases in six lying-in hospitals, estimated the total intranatal (30 per cent.) and neonatal (9 per cent.) deaths at 39 per cent.

of all breech cases; this high figure is, of course, inapplicable generally, for the reasons already stated. The East End Maternity Hospital with its very low percentage of complex cases gives a stillbirth rate of 12 per cent. and a neonatal death-rate of 5 per cent. for breech cases. Even this low figure is very high in comparison to the national rate of 4 per cent. for all causes, but it would be unfair to jump to the conclusion that it is all attributable to unskilful methods of delivery. If fatal obstetric trauma can occur in spontaneous delivery, then clearly the loss which occurs in any other method of delivery is not wholly to be attributed to the method. Even after due allowance is made for this factor, it is undeniable that the high infant mortality of breech labour is very disquieting.

### FORCEPS DELIVERY.

With regard to delivery by forceps, it is very difficult to estimate the extent to which the life of the child was already prejudiced by the conditions which necessitated the use of forceps. In the case of two series of forceps deliveries reported by two different hospitals, it is possible to exclude cases of antepartum hæmorrhage, toxæmia, failed forceps, face, brow, or breech presentation, and contracted pelvis. After these deductions are made, in one series the combined intranatal and neonatal death-rate was 15 per cent., in the other 7 per cent. In a proportion of these cases the indication was fœtal distress, and here the forceps operation must be rightly regarded as an effort to save a life already heavily endangered. Yet when all possible allowances have been made, the evidence is conclusive that the operation in its simplest form is attended by definite risk to the life of the infant.

### EFFECT OF LABOUR ON NEONATAL DEATH-RATE.

We have seen that there is not much evidence with regard to the proportion of the neonatal death-rate which should be attributed to the effects of labour. The most recent contribution is a report by Cruickshank[6] to the Medical Research Council of a series of 800 post-mortem examinations on neonatal deaths which occurred in the Glasgow Royal Maternity and Women's Hospital, and which he believes to be a fair sample of the general stillbirth-rate in that hospital. An important point, upon which national figures would be very interesting, is the proportion of deaths in the neonatal period of a month which occurs in the first week, because it is especially during the first week that the delayed mortality of intranatal stress and injury must be looked for.

Dr. Cruickshank found that in his series of 800 cases, 70·6 per cent. of the deaths occurred during the first week, 19·4 per cent. in the second, 7·3 per cent. in the third, and 2·7 per cent. in the fourth. These proportions are probably an underestimate of the third and fourth weeks, because the great majority of patients do not remain in a lying-in hospital much longer than 14 days, and there may have been unrecorded infants' deaths in those who had already been discharged which would affect the figures of these weeks.

In considering the proportion of deaths which should be attributed to the birth process, the author rightly takes the position that deaths attributable on autopsy to asphyxia and the frequently associated condition of atelectasis, are really cases in which the strain of labour proved to be more than the infant could survive. They are therefore to be attributed to the birth process. In all 540 cases out of the 800 were attributable in whole or in part to asphyxia; almost without exception these infants died during the first week. Among the 540 cases were 161 in which gross intracranial bleeding was also found. If these cases of intracranial hæmorrhage be deducted we get 379 out of 800 neonatal deaths which were solely due to the results of asphyxia, a proportion approaching 50 per cent.

Dr. Cruickshank's results would have been far more valuable if the clinical records had been correlated with the post-mortem findings. Unless the method of delivery be brought into relation with the post-mortem conditions, the significance of the latter cannot possibly be rightly judged, and the practical usefulness of the data is therefore greatly impaired.

Although it appears that considerably more than one-half of the deaths in his series must be attributed to the combined effects of asphyxia and intracranial hæmorrhage, we do not know in how many cases obstetric complications or serious maternal illness may also have been present, which would greatly prejudice the infant's chances of survival. It is therefore impossible to draw from Dr. Cruickshank's report any more exact conclusion than this—viz., considerably more than 50 per cent. of the deaths in his series were due to obstetric stress or obstetric trauma, occasioned we do not know how. From the East End Hospital figures we gather that roughly 12 per cent. of neonatal deaths were due to "atelectasis and birth injury"; this is a very different proportion to that reported from Glasgow, and is probably much nearer the average rate for the whole country; but here again we do not know to what extent maternal illness contributed to the results.

It is thus clear, that great as is the proportion of neonatal loss which is attributable to maternal illness and obstetric complications, there is a residue, at present incalculable, of cases in which the infants died in the neonatal period as the result of an uncomplicated delivery. And we have already seen that the same must also be said of intranatal deaths.

### DELAYED EFFECT OF TRAUMA.

The infant mortality from trauma is in some cases delayed beyond the neonatal period. There are, of course, no precise data available, and the actual number involved is probably not great. There is, however, a group of conditions, which do not strictly come within the limits of our subject, but of which some mention must be made. These are the results of obstetric injuries which do not prove fatal, but which lead to permanent defects or disabilities in later life. The occurrence of birth palsies, deafness, and speech defects is well known, and these are not necessarily the result of obstetric manipulations. Cases of facial paralysis have been known to occur in infants born by Cæsarean section. Injuries to muscles and fractures of bones sometimes lead to permanent disability. Proof has accumulated that cranial injury at birth is an important cause of mental deficiency.

This has recently received confirmation from the examination by Wetterdal[7] of the late history of a series of 2000 infants delivered by forceps in the practice of a Scandinavian hospital. Wetterdal also followed up 2000 infants spontaneously delivered as a control, and compared the numbers found to be mentally defective in each group. In the case of children delivered by a low forceps operation there was no increase; but in the case of children delivered by the intermediate or high forceps operation, the proportion of defectives was nearly 50 per cent. higher than in the controls.

It is impossible to pursue this matter any further, but it must not be overlooked that minor degrees of birth trauma may lead to very serious consequences to the child.

## To What Extent is the Mortality Avoidable?

It is an interesting problem to what extent the mortality we have been considering is avoidable. A large number of the infants included in the records were premature, and it is well recognised that the infant born before the thirty-sixth week is very ill-equipped to support the stress of birth. A large

number of premature infants were further handicapped by the results of toxæmic conditions in the mother. It is now well-established that toxins may pass through the placenta from the mother to the fœtus, setting up a condition of fœtal toxæmia. Others again were overwhelmed by the results of interference with the placental circulation brought about by premature partial separation of the placenta before delivery (antepartum hæmorrhage). The deaths due to toxæmia are, of course, almost entirely preventable by systematic antenatal supervision and treatment, but our ignorance of the causes of premature birth, and of placenta prævia is profound; in the case of the latter condition we can make no attempt whatever at preventive treatment. Given the presence of these conditions in labour a high infant mortality is at present unavoidable. A further large number of infants are lost because they could not survive the stress of a difficult labour. The heavy toll of infant life which occurs in breech labour, for example, has been referred to, and it is clear that in regard to the safety of the infant the art of managing difficult labour has not reached a point at which we can afford to rest content. Further, we have seen that fatal injuries are not infrequently found in infants who have died after spontaneous delivery in normal conditions. In point of fact, all known forms of intracranial injury have at times been found after spontaneous delivery.

In normal delivery the compression and moulding of the head which results from its passage through the birth canal is in some instances too rough an ordeal for the infant to bear and it succumbs under gross injury. Thus, it is possible for the tentorium cerebelli to be torn during an apparently normal labour, resulting in intracranial hæmorrhage and death.

### INTRACRANIAL HÆMORRHAGE.

The further fact must now be stated that a considerable number of cases of fatal intracranial hæmorrhage have occurred in infants delivered by Cæsarean section under selective conditions. The only possible explanation of this occurrence appears to be that in the case of certain infants the amount of compression of the head which is unavoidable in withdrawing it through the uterine incision is enough to cause serious intracranial injury. Next to asphyxia intracranial hæmorrhage is the most frequent cause both of stillbirth and neonatal death.

It is significant that in addition to stillbirths many neonatal deaths also are attributable at autopsy to asphyxia, for intranatal asphyxia is not necessarily immediately fatal. The infant may survive for a time and then perish from pulmonary infection or from the inadequacy of the pulmonary respiration. Evidence is accumulating that post-mortem indications of asphyxia found in neonatal deaths are not infrequently associated with the presence of multiple minute cortical hæmorrhages, due apparently to capillary injury, and in the case of infants who have survived for several days, by accompanying areas of degeneration.

The histological examination of the fœtal brain presents unusual technical difficulties, and there is a lack of unanimity in the recorded observations, but the fact that the multiple hæmorrhages occur is established. The hæmorrhages may even in some instances be the result of the methods of artificial respiration which were employed. Capillary hæmorrhage in the brain is found with especial frequency in premature infants, and is certainly an important factor in the high intranatal and neonatal mortality which attends premature birth. It is in many cases attributable to compression of the skull during the second stage of labour, and to the changes in the fœtal circulation, of which we know so little, which are produced during that period of labour by the powerful uterine contractions, acting against the resistance which they have to overcome. We must envisage also, in many cases, a progressive deficiency in the oxygenation of the fœtal blood from intermittent placental compression, determined in large measure by the amount of amniotic fluid which is retained after rupture of the membranes. These changes, therefore, exemplify the unavoidable rough usage which the infant must be strong enough to endure if it is to survive the ordeal of birth.

### FRAGILE INFANTS.

The majority of infants pass the ordeal without difficulty and are lusty and vigorous when born; they may even be able to endure a surprising degree of exposure and hard usage. A certain number, however, come to birth in a state of such fragility that fatal injury is caused by very slight degrees of trauma. Premature infants are examples of the condition, and the more they lack of full development the greater is their liability to injury. Yet many instances occur, as we have seen, in which full-term infants are almost as liable to injury in birth as the premature ones. It appears certain that in some cases the rim of an undilated cervix (after rupture of the membranes) or of a rigid perineum, when opposed to vigorous contraction of the uterus, may lead to serious intracranial injury. This is the probable explanation of that loss of infant life in uncomplicated labour which may over-hastily be attributed to lack of obstetric skill. At the same time, in the light of the considerations I have brought forward, we ought to ask ourselves whether, in our methods of conducting labour, and even more of dealing with the infant after birth, we make sufficient allowance for the surprising vulnerability which is present in a proportion of cases?

The rougher methods of artificial respiration which were formerly employed in asphyxia neonatorum have been abandoned, but the extreme gentleness required in the handling of the asphyxiated baby is perhaps hardly yet realised. The premature baby is especially ill-prepared for the slightest rough usage.

The capillary cerebral hæmorrhages, which have been already referred to, are found on autopsy in roughly 75 per cent. of premature infants weighing under 4 lb., and are certainly traumatic in origin. The view has been expressed that the capillaries are much more permeable in the premature than in the full-term infant. This condition, if present, would obviously increase the risks of delivery by forceps, for example. In the same way compression while handling the trunk may produce unexpected damage to viscera. Injury to thoracic or abdominal viscera in spontaneous vertex labour is practically unknown, it is upon the head that the stress of labour chiefly falls.

### THE PROBLEM OF PREVENTION.

It will now, I think, be clear that for the fœtal mortality of birth the actual medical attendant at the confinement can fairly be charged with but a limited responsibility. To say that the loss of an infant in or after an easy confinement is a proof of negligence or want of skill would be quite unfair. No degree of medical and nursing skill can make birth anything but a rough passage for the infant. The problem of prevention of stillbirths and neonatal deaths therefore bristles with difficulties.

At present we know of no conditions, apart from syphilis, maternal toxæmia, and acute infection which can be said to be directly operative causes of fœtal death in utero. Syphilis is responsible, possibly, for one-third of the antenatal deaths which occur at a viable age. The toxæmias are the causes which comes next in frequency. In regard to both syphilis and maternal toxæmia, the value of constitutional treatment in pregnancy is well-established. Apart from antenatal death the causes of premature confinement are not understood, and further knowledge of these conditions might open up a wide field for preventive measures.

In regard to placenta prævia which takes such a heavy toil of fœtal life, we do not know either the cause of this condition or how to prevent its occurrence; under the most skilful methods a heavy fœtal loss is inevitable, for the dominant urgency of saving the mother's life can brook no interruption from other considerations. It must, however, be admitted that in the management of breech labours, and in the use of forceps practice, even in the hospitals, has not reached a point at which we can afford to rest content. When all this has been said, there remains a more obscure factor—viz., the extreme liability of the fœtus to shock and to cerebral injury; its great fragility in short, as compared with the forces which act upon it. Is it not possible that our obstetric methods do not take sufficient consideration of the vulnerability of the infant?

### The Infant's Powers of Resistance.

A final question remains for brief consideration: Is it possible during intra-uterine life to increase the infant's powers of resistance so that it may stand up better to the stress of birth? We do not know on what factors its powers of resistance depend. Heredity is no doubt important, and the offspring of vigorous stock is likely to show more vitality than that of a stock which is dying out. But so far as our knowledge goes, it is very difficult to influence the child in utero through the mother. It is well known that the fœtus is not injuriously affected by underfeeding the mother during pregnancy, nor does overfeeding of the mother result in any increase of the infant's birth-weight. The experience of the Great War finally established the former point, by an experiment on a scale so vast as to be conclusive. For facts other than this we are largely dependent upon animal experiments which cannot be applied to the human species without the greatest care.

It has been clearly shown experimentally that a deficiency in the mineral content of the maternal diet, especially in regard to iron, phosphorus, and calcium, does unfavourably affect fœtal development. Experimental researches on rats have shown that deficiency of vitamin E in the maternal diet before and during gestation has a very marked influence on fœtal development. When the deficiency is considerable the embryo perishes at about the mid-term of gestation; the placenta thereafter undergoes coagulation necrosis, and eventually complete resorption of the whole ovum occurs. When the degree of avitaminosis is less severe, young may be born alive, showing muscular paralysis of the trunk and hind limbs. Prolonged deprivation of vitamin E leads to complete sterility of both the male and the female rat.

#### VITAMIN DEFICIENCY.

The results of vitamin E deficiency as seen in rats are brought about mainly by faults in the development of the maternal elements of the placenta leading to the death of the embryo. The paralytic phenomena observed in certain of the young which survive are more difficult to explain. There is no satisfactory evidence that fœtal avitaminosis can be experimentally produced, and the conclusion that these fœtal paralyses are the consequence of fœtal want of vitamin E would not be justified. These experiments do however suggest that premature termination of pregnancy, when it occurs apart from constitutional disease or other obvious cause, may be due to a maternal deficiency of vitamin E

Further, it has been shown in rats that deficiency of vitamin D in the maternal diet produces in young rats a definitely increased liability to rickets after birth. The result is not to produce congenital rickets, a condition which I believe is unknown both in man and animals.

An increased liability to rickets is, however, shown thus: healthy young rats fed upon a diet sufficiently deficient in vitamin D always acquire rickets; if the young are from a mother who during pregnancy has been given a diet deficient in vitamin D, the young will acquire rickets much more readily than those whose mothers were properly fed. This is explained by assuming that during pregnancy vitamin D passes through the placenta from the mother; some of it is used up for purposes of bone formation, the rest is stored by the fœtus in some manner, we do not know how. Upon the amount so stored will depend the degree of liability of the young to develop rickets after birth—i.e., its resistance to the conditions which produce this disease.

Again, it appears to be established that marked deficiency of vitamin A leads eventually to sterility in experimental animals. The recently established fact that the same vitamin is an agent in maintaining resistance to infective processes is also suggestive. The power to resist infection may carry with it the ability to resist shock also.

No more is suggested than that here is a direction in which further research may reveal a new preventive field. It is generally accepted that a proper vitamin balance is an outstanding necessity in the nutrition of the growing child. Although we cannot influence the size or weight of the child in utero in either direction, is it not possible that we may increase its power to resist traumatic influences by means of a carefully balanced vitamin content of the maternal diet?

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## HEPATIC EFFICIENCY.*

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The increasing attention paid to the interpretation of symptoms and to functional disorders has taken investigation a stage further back than the detection of physical signs and structural changes, and is an attempt to study the earliest evidence of a departure from the normal and so to further the prevention of disease. Functional tests have been extremely successful in organs, such as the stomach and kidneys, with comparatively simple functions, but their extension to the liver has brought about a very different position which is beset with difficulties.

#### DIFFICULT TO DETERMINE.

The liver has many functions, being concerned with the metabolism of the carbohydrates, proteins, and fats, with excretion of bile, in various ways with the composition of the blood, and exerting a detoxicating effect. In order to investigate the efficiency of these various functions corresponding tests have been employed in such profusion that it is impossible to enumerate them; indeed Dodds and Whitby point out that there are many hundreds of tests

* Introducing a discussion on the Methods of Determining Liver Function and their value, at the Medical Society of London on Nov. 23rd, 1931.

available—in the literature. The tests for any one function, though giving that particular information, cannot therefore be expected to throw light on the other functional activities of the organ. Clinically one of the functions in which the liver is concerned, though not exclusively responsible, (for example the excretion of bile) may fail, while another, for example the glycogenic function, may appear to be competent. If there was any evidence that the hepatic functions fail in a constant sequence, tests for the last one to be disordered would throw light on the condition of the liver as a whole; but such a sequence is not known, and the desired single and comprehensive test for total hepatic efficiency is not available. Determination of the total or so-called global functional capacity of the liver by estimating the power of the liver to remove dyes, such as rose bengal and phenolphthalein compounds, when injected intravenously, from the blood, has been advocated; but it is significant that the tests involving the use of phenoltetrachlorphthalein (Rosenthal), bromosulphalein (Rosenthal and White) have led to the adoption of cholecystography which provides more gross anatomical information, and that examination of the fæces, duodenal contents, and blood for the presence and rate of removal of the dye have been largely abandoned. Chiray, Lesage, and Taschner's recent investigations do not lend any encouragement to the hope that the same substance would serve as a test for the efficiency of both the liver and the biliary tract.

Many, if not all, of the functions of the liver are shared in some degree with other organs or tissues of the body, thus the muscles are concerned with carbohydrate metabolism, and efficiency tests, other than those utilising lævulose and galactose, give information as to the body as a whole and not about the liver alone.

The liver has great reserve power, for experimentally four-fifths of the liver can be removed without any bad effects. After damage to the liver, for example in subacute atrophy, compensatory regeneration rapidly takes place and the functional efficiency of the organ is more or less restored. Hence in serious chronic diseases of the liver, such as cirrhosis and malignant growths, functional tests may be negative although the clinical evidence may be quite convincing.

### VALUE OF TESTS IN MEDICAL PRACTICE.

It is in acute rather than in chronic lesions of the liver that functional tests are likely to give constant evidence of impaired activity. In acute yellow atrophy, in which all or nearly all the parenchyma of the liver and presumably its functions are involved, the clinical picture usually gives sufficient data for the diagnosis, and the need for further tests may not be obvious. In the treatment by arsenobenzol preparations of syphilis evidence of impaired function in the excretion of bile—the presence of bile acids in the urine by Matthew Hay's test, and so-called latent jaundice by Hijmans van den Bergh's test—is valuable by giving a warning that changes are taking place in the liver and so indicating cessation of the injections and the administration of glucose, in order to avoid the more severe accidents of post-salvarsan jaundice. These methods have the advantage of simplicity and rapidity over the lævulose test in routine work (W. I. Gerrard).

In chronic ascites due to causes other than hepatic disease, such as tuberculous peritonitis and carcinomatosis of the peritoneum, negative results with functional tests, such as rose bengal, may be of use in diagnosis (Barker). The value of van den Bergh's test in connexion with different forms of jaundice may be regarded as established. It is in ordinary portal cirrhosis that, in spite of many reports to the contrary, functional tests so often fail, especially when their help is most needed. The lævulose and galactose tests have been much employed, but the compensatory power of the liver may vitiate the results, especially in latent cases. Urobilinuria, common in cases of structural change and functional disorders of the liver, provided that bile enters the intestine, is not pathognomonic of any one disease of the liver, and may occur when blood destruction is taking place in any part of the body.

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## TESTS OF HEPATIC FUNCTION.*

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IT would be difficult to find a subject more unsuitable than the present one for a display of recent advances and brilliant developments. The introductory speakers in a discussion such as this are expected to produce something new, or at least to give indications of lines for further research. Some ten years ago a discussion was held by the Medical Society of London on this very problem, and it is very doubtful if much of permanent value can be added. Many of the reactions and functional tests that looked so promising at that period have now been found to be of little or no practical value, and are now added to that long list of tests in text-books memorised by the ambitious student for the higher examinations in medicine. Up to ten years ago the general feeling of physicians and pathologists was much more hopeful with regard to the testing of liver function than it is to-day. Thus reference to the then current text-books reveals dogmatic statements concerning functional tests designed to investigate the antitoxic function, the urobilin formation, the nitrogen partition, and many others. The Continental literature was full of promising articles on the lævulose-tolerance test, the blood fibrinogen estimation, and later on the hæmoclasic crisis test of Widal. About the year 1921 publication on these lines began to decrease, and since then a definite gloom has settled upon the outlook of this problem of vital function testing.

### THE WORK OF THE MAYO CLINIC.

At first sight it might appear strange that the depression commenced at this particular period, yet a careful search of the literature will find one paper responsible for this rapid change of outlook. Originating from this one publication a series of others have continued the work, and all have re-emphasised the hopelessness of the task facing the physician and laboratory worker. The original publication is that of F. C. Mann, and the later communications originate from himself and his group of co-workers at the department of experimental surgery in the Mayo Clinic. It will be remembered that this group of investigators were the first to remove successfully the liver completely from the dog and to study the metabolism of the animals by modern biochemical methods. This work has been referred to a great deal in the past, but it would appear that to many the reference is a mere name associated with an

* A contribution to a discussion at the Medical Society of London on Nov. 23rd, 1931.

idea that much of the liver may be removed from a normal dog without the immediate development of serious symptoms. Few realise the long and elaborate series of investigations of hepatic function that has been carried out in this department, and the conclusions of the very greatest importance to all interested in the liver that have been arrived at. In view of this I propose to summarise their publications over the last ten years with a view to refreshing the memories of all who are interested in the pathology of the liver.

The technical description of the method need not be gone into here. Suffice it to say that the operation is performed in a series of stages, and that from a surgical point of view the animals are in excellent condition after the final removal of the liver. I will quote Mann in the description of the clinical condition of the dog after the removal of the liver.

"If the operation is performed successfully with due regard to hemostasis and anæsthesia, the animal recovers from the immediate effects quickly, and the clinical course is definite and varies but slightly in the different animals. One hour after operation the animal usually appears almost normal, and remains so for from three to eight hours; it walks around, responds to call, and exhibits the usual interest in other dogs, and drinks water, and sometimes takes food. Observers seeing the animal at this time pronounce it normal. The onset of the moribund period is usually sudden, and the subsequent developments of various symptoms typical and rapid. The first symptom noted is muscular weakness. The animal cannot hold itself erect, or avoid swaying when walking, and prefers to lie down. The muscular weakness develops quickly, and in a short time the animal is unable to move any of its muscles except those necessary for respiration. Coincident with this development of muscular weakness is a decrease and subsequent loss of reflexes. Usually within an hour after evidence of muscular weakness is first noted, the animal lies quietly breathing with muscles flaccid and relaxed. This period of flaccidity may be short but rarely it may last for several hours. After a variable period, usually not more than an hour, there is a rather sudden return and exaggeration of the reflexes. Muscular twitchings appear at first involving separate muscles or small groups of muscles, then general convulsions occur in one of which the animal dies. In typical experiments the animal vomits a few seconds before death. The symptoms and the order of their occurrence are: muscular weakness, loss of reflexes, flaccidity, return and exaggeration of reflexes, muscular twitchings, and convulsions. These symptoms are extraordinarily constant. The average animal if untreated dies within two hours after the appearance of the first signs of muscular weakness."

### EFFECT OF COMPLETE REMOVAL OF THE LIVER.

The course of events consequent upon complete removal of the liver may be classified and dealt with under the following headings.

1. *Disturbance of Carbohydrate Metabolism.*—The muscular weakness and convulsions referred to in Mann's clinical description are due to hypoglycæmia. The blood-sugar falls rapidly until the hypoglycæmia level is reached at which point the symptoms appear. The intravenous administration of glucose at once relieves the convulsions. After a short period a relapse will occur and restoration can again be effected by further glucose injection. It is possible to keep the animal alive for a number of hours by this method, but death finally takes place in a coma due to some unknown cause.

2. *Protein Metabolism.*—A change occurs in the nitrogen partition following removal of the liver. Very briefly it may be stated that the blood and urinary urea progressively diminishes, and that amino-acids appear in increasing concentration. The uric acid content of both blood and urine shows a steady increase, thus indicating the important part played by the liver in the destruction of this substance. Creatinin metabolism is unaffected.

3. *Biliary Functions of the Liver.*—The blood cholesterol shows no change whatsoever, but jaundice develops in all the animals surviving the operation. Within six hours the plasma is definitely yellow, and clinically jaundice may be detected on the conjunctiva. Tested by the van den Bergh method the plasma gives an indirect reaction which later becomes biphasic. The importance of this observation upon the question of the origin and types of bile-pigment cannot be over-emphasised.

4. *Antitoxic Functions of the Liver.*—As is well known, it has been maintained for many years that the liver is responsible for the conjugation and detoxication of poisons such as phenol. It is interesting to relate that these American observers failed to find any diminution in the conjugation with glycuronic acid of phenol, or of salicylic acid, in the hepatectomised animal. The animals as a whole, however, were more easily poisoned than a normal dog.

5. *Hæmatopoietic Function of the Liver.*—No alteration could be detected in the hæmoglobin, red cells, plasma protein, fibrinogen contents, nor was there any evidence of alteration in the coagulation time of the blood.

That, very briefly, is a summary of the facts of complete removal of the liver, and it is of obvious importance in pointing out the precise functions of the liver which the investigator would hope to be able to test by functional reactions. Since, however, there is no clinical condition in which the liver is completely put out of action, we must turn to the experiments of Mann and his collaborators upon the effects of partial removal of the liver. Great technical difficulties were encountered owing to the remarkable regenerative powers of the dog's liver. The difficulties were finally overcome by a combination of methods, and it was found possible to produce a permanent reduction of some 70 per cent. of the functioning liver tissue. In these animals, with roughly four-fifths of the liver removed, they were unable to detect any evidence of diminished function by means of the tests described. The animals remained in a good state of health, and the only abnormality that could be found was a tendency to a high uric acid content of the blood. No alteration could be found in the nitrogen partition, the pigment metabolism, and the antitoxic function. Surely it is not difficult to account for the pessimistic outlook of experienced workers in this field in view of these experiments. The investigator of hepatic function must either abandon finally and completely all the methods mentioned above, or else must doubt the work of Mann and his collaborators, or alternatively maintain that the hepatic function in the dog is totally different to that in man. As to the accuracy of the Rochester work there can be no possible doubt, since many European workers have seen the demonstrations in America, and have repeated in every detail these striking experiments. There is no evidence that the liver function in the dog is different to man in its main essentials, and therefore the argument of inapplicability of the results to man would appear to fall to the ground.

### LEGITIMATE DEDUCTION.

I may perhaps be permitted to sort through the wreckage of tests of hepatic function in the hope that perhaps one or two points of value may be found. My own experience has shown that two tests may be of value, and these are the galactose-tolerance test and the estimation of bile-pigments in the blood. Again, it is not proposed to enter into any literary summary as this has been done many times. The galactose-tolerance test to me is only of value in the differentiation in a very early case of jaundice in, say, a middle-aged patient. A sudden

attack of jaundice in a patient of, say, 40 years of age may mean a simple catarrhal jaundice, or possibly a more serious condition such as obstruction of the bile-duct through secondary deposits, &c. A galactose-tolerance test performed on such a patient will very materially assist in a differential diagnosis. If a marked rise be found in the blood-sugar following the administration of galactose then it is fairly safe to conclude that the patient is suffering from catarrhal jaundice. On the other hand, no rise at all, indicating that the liver function is normal, would point to an obstructive, and possibly more serious, case of the icterus. Apart from this, the galactose and lævulose-tolerance test has proved in our hands at least unreliable and impossible of interpretation.

The estimation of bile-pigment in the blood is only of value in determining the severity of the jaundice, and would, repeated from day to day, give the clinician valuable indications as to whether the condition is getting better or worse. The icterus index is the simplest and most satisfactory method of performing this test, and it possesses the advantages of being so simple that it can be done at the bedside. The same results may be obtained by an application of the quantitative van den Bergh reaction, but this is much more difficult to perform, and requires expensive apparatus. The van den Bergh reaction in our experience is of little practical value in elucidating the nature of jaundice. Whatever the underlying theoretical principles responsible for the various types of van den Bergh reaction, it must be admitted that from the clinical viewpoint the problem reduces itself to a quantitative one. If there is a very large quantity of bile-pigment in the serum then an immediate direct reaction will be obtained, and since obstructive jaundice is the only condition commonly encountered with a very large serum bilirubin content, it follows that little will be gained by performing this test. The reverse argument holds good in the case of the delayed reaction with the small amounts of pigment encountered in hæmolytic jaundice. These remarks must not, however, be allowed to deprecate the great importance of the van den Bergh reaction in the experimental investigation of jaundice. There can be no doubt that this work has advanced our knowledge of this difficult subject in an immeasurable manner. From the clinical aspect, however, it must be admitted that little fresh information can be gained from this source over and above that resulting from a careful examination of the patient and inspection of the serum. Experience with the dye excretion tests as methods of estimating the functional activity of the liver has failed to yield valuable results. For general work the tests proved unsatisfactory, and have been severely criticised in the literature. Examination of the fæces for bile and fat content, and an examination of the urine for urobilin are of little value in assisting in assessing the functional capacity of the liver other than giving evidence as to the amount of obstruction, and warning of an oncoming attack of jaundice respectively.

### THE WORK AT JOHNS HOPKINS.

It would appear impossible to hold out any hopes for further developments of tests on the lines reviewed above. A reconsideration of jaundice from the point of view put forward by Rich may perhaps lead to the development of fresh tests to investigate this condition. The following is an account in his own words of his views.

"The first type, retention jaundice, results from an over production of bile-pigment, usually associated with conditions (anoxæmia, fever, immaturity) which tend to render the excretory power of the liver subnormal; enough bilirubin is therefore retained in the blood to stain the tissues. This form of jaundice is characterised clinically by (1) indirect reacting plasma bilirubin; (2) increased amounts of fæcal urobilin; and (3) urobilinuria. Pathologically the ducts are patent, but the liver-cells may show atrophy or cloudy swelling, depending upon the associated condition of which the jaundice is a symptom.

"The second type, regurgitation jaundice, is caused by the reflux of whole bile from the canaliculi into the blood stream. This type is characterised clinically by (1) direct-reacting plasma bilirubin; (2) subnormal amounts of fæcal urobilin; and (3) the presence of bilirubin and bile-salts in the urine. The pathological basis of this form of jaundice is rupture of the canaliculi resulting from obstruction of the ducts or from necrosis of the hepatic cells.

"Combined forms may occur, as well as a transition from one of these types of jaundice to the other."

If this classification may be adopted, it may be possible to shed new light by an application of the quantitative van den Bergh test, the icterus index, and the galactose-tolerance test. In conjunction with this one of the more recent modifications of the dye-excretion test might succeed in eliciting new facts. Finally, however, it would appear that investigations along the older lines will only lead to errors and disappointment.

*References.*—Mann, F. C.: The Effects of Complete and of Partial Removal of the Liver. Medicine, 1927, vi., 436. Rich, A. R.: The Pathogenesis of the Forms of Jaundice, Bulletin of the Johns Hopkins Hospital, 1930, xlvii., 376.

## VITAMIN D DEFICIENCY, DENTAL CARIES, AND TONSILLAR ENLARGEMENT.

### A CLINICAL INVESTIGATION OF SOME LATE EFFECTS OF RICKETS.

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IN spite of important work carried out during recent years, the cause of dental caries in man is still uncertain. Or possibly the situation might be more accurately described thus: it is known that diet, oral hygiene, general health, and age, for example, are all ætiologically significant, but there is no general agreement as to the specific cause or causes actually operating to produce the very high incidence of caries found in most civilised communities, nor as to what specific prophylactic measures should be employed. One of the difficulties in the way of establishing the cause of caries is the difficulty of producing at will caries of the teeth in laboratory animals. The chief theories regarding the origin of dental caries, together with some of the evidence on which they are based, are reviewed in a recent issue of the *American Journal of Diseases of Children*,[1] and no attempt will be made to recapitulate them here. The following investigation was aimed at obtaining evidence for or against one theory only—namely, that caries in school-children is mainly due to a deficiency of vitamin D in the first years of life.

### THE PROBLEM.

Mrs. Mellanby's many and important experiments have shown that dental structure in young animals (dogs, rabbits, and rats) is rendered defective by a deficiency of vitamin D, the antirachitic vitamin, in early life. D-deficiency in puppies, with whom most

of her work was done, does not produce dental caries, although it does produce defective structure—in other words hypoplasia—but she considers that similar hypoplasia in children is the main ætiological factor determining the development of caries. The following quotations from her papers give, we think, a fair representation of her views on the cause of caries:—

"The most potent factor for promoting the development of normal teeth and jaws is a vitamin associated in general with fats, and now called vitamin D." [2]

"There can be little doubt that the structure of human teeth and their susceptibility to caries are intimately related." [3]

"In paper 2 of this series it was suggested that 925 out of 1036 deciduous (human) teeth examined might be regarded as in agreement with the hypothesis that there is a direct relationship between structure and caries, while 111 of the teeth were definite exceptions. . . . Now . . . the experimental work on dogs showed that the resistance of teeth, as indicated by the quantity and quality of the secondary dentine laid down in response to irritation, could be altered by certain factors, especially the amount of vitamin D in the diet. . . . The structure of the secondary dentine of 72 per cent. of the exceptions to the main hypothesis suggested that their resistance to caries had been raised or lowered, respectively, after eruption." [4]

". . . Nearly 90 per cent. of the teeth examined might be considered to support the general hypothesis that structure and caries are intimately related." [3]

From this it appears that there are two aspects of the problem: (1) The influence of D-deficiency on the structure of developing teeth and on their *subsequent* liability to caries—to this influence on structure Mrs. Mellanby apparently ascribes the presence or absence of caries in nearly 90 per cent. of the deciduous teeth she examined; and (2) the influence of D-deficiency on fully erupted teeth (which may or may not show developmental defects), and on their *immediate* liability to caries, which, judging from the quotation above, is in Mrs. Mellanby's opinion a much less important factor.

If the views quoted above are correct, then children who have suffered in the first years of life from a deficiency of vitamin D sufficient to produce well-marked rickets should also show well-marked hypoplasia and much caries of those teeth which have been calcified during the rachitic period, whereas a child protected from rickets should have well-formed and, on the whole, sound teeth. It is this first aspect of the problem which we have attempted to investigate.

Mrs. Mellanby, with Dr. Lee Pattison,[2] has herself investigated in children the second aspect. She has watched the effect of different diets on the already erupted teeth of institution children. These observations were made on three different occasions from 1921 onwards, the total number of children being 124, who were subdivided into seven dietetic groups and kept under observation for about seven months. She finds that these investigations "corroborate the results suggested by the animal experiments"—namely, that the administration of vitamin D and factors favourable to the cure of rickets will cause arrest of caries. In the newly published Medical Research Council Report of the Committee upon Dental Diseases [5] (of which Mrs. Mellanby is a member), much larger numbers of children are included (332), and these were kept under observation for two years or 18 months. In the *permanent teeth* of children receiving extra vitamin D there was, as compared with controls, a statistically significant retardation in the spread of caries. As regards the *deciduous teeth*, on the other hand, the difference in the rate of spread of caries between children getting extra vitamin D and the controls was not statistically significant, except in the case of those controls who received an extra ration of treacle, which introduces another factor into the problem. Mrs. Mellanby has not, so far as we know, yet published any investigation into whether or not children who have suffered from definite D-deficiency in the past, as evidenced by bone changes, have a higher incidence of caries than others. And, on the other hand, our investigation does not deal with the problem of the influence of continued administration of vitamin D on the immediate liability to caries of already erupted teeth.

Larger numbers of children than those recorded in our paper would have been desirable, but it is thought that even an observation on a small scale, such as this, has provided evidence requiring serious consideration, and may stimulate the production of further evidence.

## GROUPS OF CHILDREN EXAMINED.

The primary object of the present investigation was to compare the teeth of children who had suffered from rickets with those of a control group, of similar age and social class, who had not. A secondary object was to determine whether the proportion of children with enlarged tonsils was greater in the rachitic group than among the controls. For this purpose it was necessary to find a group of children known to have had rickets and a set of control children with whom they could fairly be compared.

(*a*) *Selection of rachitic group.*—The children selected for the rachitic group were of school age (6–10 years old), and had all attended the Queen's Hospital for Children in infancy or early childhood with rickets. Since the standard accepted for a diagnosis of rickets of the milder grades varies considerably from observer to observer, the cases included were, with few exceptions, only those seen and diagnosed by one of us (H. M.). The exceptions were a very few cases of severe rickets which had attended under a surgeon. All doubtful cases were omitted. No case was included in which the diagnosis was not made with absolute certainty, either clinically or radiographically, or both, diagnosis being based on bone changes. Some of the children had subsequently had a long period of treatment, others only attended the hospital once or twice, and probably received extremely little treatment in consequence. The children were not attending the hospital at the time of this investigation (winter 1930–31), but were written for that they might be re-examined.

(*b*) *Selection of control group.*—Finding a control group was a matter of some difficulty. It might have been possible to select children who had been under continuous observation—e.g., who had attended a welfare centre regularly, and had been given cod-liver oil during the winter in infancy and early childhood—and who were known to have had no evidence of rickets during the whole of the first few years of life. But such a group of children would not have given a fair comparison, because their up-bringing would probably have been better in many respects than that of our rachitic group. Their mothers would have been frequently instructed in feeding and hygiene, and constant attendance at a welfare centre is in itself evidence of maternal carefulness. Better teeth, if found in such a group of children, could not therefore have been attributed to any single factor. It was, therefore, decided to select for our controls past patients of the hospital who had attended at similar ages in infancy and early childhood to the rachitic group, but who had not, *at that time*, any evidence of rickets. All these children had been seen and examined by one of us (H. M.). They had attended for a great variety of conditions from malnutrition to pneumonia or threadworms, and, like the rachitic cases, for periods varying from a few weeks to many months.

(*c*) *Economic status of the families.*—Thus the group of rachitic children was compared with a group of children of similar age who had attended hospital about the same time with diseases other than rickets. Nearly all mothers of both groups had been given some instruction in the feeding and general management of their children, but the diet during the years intervening between this time and the date of the present investigation is unknown. The children who were brought up in response to our request appeared to be children of parents who were worse off than the majority of the hospital's patients. Both groups were, on the whole, at the time of this investigation living under bad economic conditions: the winter of 1930–31 has seen a rise in unemployment in the district served by this hospital, and consequently the economic conditions and the diet of the children were in many cases worse than

they had been in earlier childhood. A large proportion of families were in receipt of poor relief, milk grants, or other assistance in money or in kind. There seemed little to choose between the economic status of the two groups. Every mother was questioned concerning the diet given during the week preceding attendance. She was asked the average quantity of milk consumed daily by the child, the weekly consumption of eggs, and the number of days on which meat, fish, and fruit respectively were given, and, so far as could be ascertained, the diets given were not worse in one group than in the other.

(*d*) *Examination of the children.*—The number of children written for was 244, but only a small proportion attended. Many had moved from their old addresses. Only 46 in the rachitic group and 40 in the control group were available for comparison.

Each child underwent a general clinical and a dental examination by the physician and the dental surgeon writing this paper. The dental examination and records were made by S. R., who had no information as to the past history of the child.

## GENERAL CLINICAL COMPARISON OF THE RACHITIC AND CONTROL GROUPS.

The first comparison made was a general clinical comparison of the two groups (see Table I.), which

TABLE I.—*Age, Weight, and Height.*

| Age-groups. | Rickets. | | | | Controls. | | | |
|---|---|---|---|---|---|---|---|---|
| | Cases. | Av. age. | Av. weight. | Av. height. | Cases. | Av. age. | Av. weight. | Av. height. |
| yrs. | | yr. m. | st. lb. oz. | ft. in. | | yr. m. | st. lb. oz. | ft. in. |
| 6 .. | 10 | 6 7½ | 3 0 5½ | 3 8½ | 10 | 6 6½ | 2 12 12½ | 3 9½ |
| 7 .. | 14 | 7 4½ | 3 6 0½ | 3 9½ | 7 | 7 6 | 3 10 15½ | 3 11 |
| 8 .. | 6 | 8 2½ | 3 6 9½ | 3 11 | 12 | 8 4 | 3 6 7 | 4 0½ |
| 9 .. | 8 | 9 4½ | 3 10 4½ | 3 11½ | 7 | 9 6 | 4 1 8 | 4 1½ |
| 10 .. | 7 | 10 5½ | 4 4 14½ | 4 2½ | 4 | 10 6½ | 4 5 5½ | 4 2½ |
| Total | 45* | 8 2 | 3 7 9½ | 3 9½ | 40 | 8 2 | 3 8 3½ | 4 0 |

* Only 45 cases are shown in this table instead of 46, because in one the record of weight and height was lost.

showed, as might be expected, that in the rachitic group the disease had left its mark on many of the children. They averaged over ½ lb. lighter and 2½ in. shorter than the control children, and the long bones of 24 per cent. still showed rachitic bending. On the other hand, none of the 40 children in the control group showed definite pathological curvature of the long bones, though in one single instance the note made at the time of examination was "(?) slight bending of tibiæ in lower third, not definite." If we subdivide the children by age, the resulting groups are very small, yet in each the controls are superior in height, and in three groups superior in weight also to the corresponding rachitic groups.

These findings furnish sufficient evidence to prove that the difference in available vitamin D between the two groups in early life had been considerable. It was naturally desirable to ascertain in addition whether any individuals in our control group had ever suffered from rickets, but as they had not been under continuous observation in infancy and early childhood, this unfortunately was impossible to determine.

A digression is necessary here to consider the admissibility of evidence other than pathological curvature of the long bones as an indication of past rickets. The question is debatable, and we can only give our own views based on past experience. In our experience rickets is the commonest cause of severe *chest deformity* in childhood, but nevertheless in any individual case diagnosis of past rickets cannot be based on this alone, and the majority of slight departures from the normal shape of the chest are probably not due to rickets. Similar factors cause deformities of the chest in rachitic and in non-rachitic children, with the added factor in the former that their ribs are abnormally soft. A persistently distended abdomen in infancy or early childhood brings about splaying of the lower costal margin; repeated respiratory infections or respiratory obstruction produces lateral flattening of the chest wall or a Harrison's sulcus. A marked degree of chest deformity, indistinguishable except by the absence of enlarged costochondral junctions from that occurring in rickets, can be watched developing in a non-rachitic infant with, let us say, whooping-cough and persistent bronchitis. The normal *shape of the head* varies so greatly that rachitic changes have to be considerable before they are reliable in diagnosis. Moreover, after a few months' treatment in infancy a typical "hot cross bun" head may show such marked improvement that it is no longer diagnostic. Hence it is seldom possible to diagnose past rickets from the shape of the head alone. *Knock-knee* in childhood, when marked or when associated with bone deformity, is, of course, due to rickets in the great majority of cases. But a slight degree of knock-knee occurring in children with flabby muscles and lax ligaments is extremely common, and may very often be seen in young children who have been under continuous observation and have never had rickets, though since flabbiness of muscles is a symptom of rickets so also is this type of knock-knee.

Let us now revert to the two groups of children under consideration. In both there were children with *malformed chests*. In the rachitic group there were 17 in all—that is, about 40 per cent. of the group had malformed chests; in nine of these the chest deformity was well marked and was very probably rachitic in origin; in eight the departure from the normal was only slight—e.g., a slight degree of antero-lateral flattening, slight splaying of the lower costal margin, or a slight sulcus. In the control group ten children (25 per cent.) exhibited slight malformations of the type just mentioned. Some of these, of course, may have been rachitic in origin, but in our opinion the majority can safely be reckoned as non-rachitic. No child in this group had a marked degree of thoracic malformation. Only one case in the rachitic group, and none among the controls, showed a pathological degree of "squareness" of the head. Slight knock-knee, without evidence of bone deformity, was present in 13 per cent. of the rachitic group and in 7·5 per cent. of the controls.

To sum up: basing our diagnosis of past rickets on the presence of pathological bending of the long bones, we find *no definite cases of old rickets in our control group.* Moreover, the rachitic group contained all the cases of well-marked chest deformity, the only case with what was considered a pathologically "square head," and a considerably larger number of cases of slight knock-knee (without bone deformity), than the control group. We do not claim that our control group contained no cases of past rickets (it is probable that some had suffered from slight rickets), but we do claim that none had rickets when examined in babyhood or early childhood, nor definite evidence of past rickets when re-examined at school age for the purpose of this investigation. Whereas *all the rachitic group had conclusive evidence of the disease when seen in infancy or early childhood, and at school age 25 per cent. still had deformity of the long bones,* and 13 per cent. more showed well-marked chest deformities, very probably of rachitic

origin. Therefore, although the controls may have included some children who at one time or another had had rickets, any vitamin D deficiency from which they had suffered during the first years of life must have been slight as compared with the deficiency suffered by the rachitic group who, six years and more afterwards, were still retarded in growth. Even if every malformation of the chest were regarded as evidence of rickets this would still hold true. Hence if vitamin D deficiency in early life and a consequent defect in dental structure is the chief, or even one of the most important causes of dental caries, then there should be much more caries in our rachitic group than in our control group.

### COMPARISON OF TEETH IN THE TWO GROUPS.

In the examination of the teeth attention was paid to three main points:—

1. The presence or absence of hypoplasia of teeth of the second dentition.
2. The presence or absence of crowding of the teeth of the second dentition, provided a sufficient number of these teeth had erupted.
3. The presence or absence of caries at the time of examination, and the number of teeth already extracted for caries.

The association between *hypoplasia* of the permanent teeth and rickets was clearly indicated (see Table II.). In the rachitic group, ten children

TABLE II.—*Number of Children with Crowding or Hypoplasia of the Permanent Teeth.*

| — | Rickets. | | Controls. | |
|---|---|---|---|---|
| | Cases. | Percentage. | Cases. | Percentage. |
| Children with— | | | | |
| Crowding .. | 9 | 20 | 7 | 18 |
| Hypoplasia .. | 10 | 22 | 1 | 2·5 |

(22 per cent.) showed hypoplasia of the permanent teeth, seven of these being of a fairly severe grade; whereas in the control group hypoplasia was noted in one child only (2·5 per cent.), and that in a slight degree. It is impossible to generalise from such small numbers, but in the individual groups we are considering hypoplasia was nine times as common in the rachitic group as in the control group. As the children's ages varied from 6 to 10 years, many had cut only a small proportion of their permanent teeth, and some none at all, so that the figures here given for hypoplasia of the permanent teeth do not indicate the total proportion of second dentitions showing this defect. Moreover, the hypoplasia was of a grade to be easily recognisable clinically; hypoplasia of a grade requiring histological section for its recognition is, of course, excluded.

The diagnosis of hypoplasia is obviously subjective, many cases so diagnosed by one dentist would be excluded by another, so that it becomes necessary to describe the naked-eye changes in the appearance of the permanent teeth which have been accepted as evidence of hypoplasia by S. F. R. in this investigation. The diagnosis has been based on the condition of the enamel which in a typical case is markedly craggy, grooved, or pitted. The tooth crowns have a shrunken or wizened appearance, the incisal edges being often so thin that they readily chip or break off under the stress of mastication. Often the enamel is deeply pigmented. In a typical case the incisors, canines, and first molars are affected, the premolars and second molars, which calcify later, escaping. Both upper and lower teeth are usually equally affected. On developmental grounds one would expect any nutritional check which brought about the condition described to be in operation during the first or second year of life. Later checks might affect the premolars and second molars, but hypoplasia in these teeth is much less common, and our groups of children were too young for investigation of these teeth.

No figures have been given for the incidence of hypoplasia in temporary teeth because there are such wide differences of opinion as to what deciduous teeth should be classified as hypoplastic: the differences of opinion are such that a condition called by some hypoplasia of the temporary teeth is by others believed to be a denuding form of caries which has undergone arrest.

In the matter of *crowding* of the permanent teeth there was little to choose between the two groups (see Table II.). Nine of the rachitic group (20 per cent.) and seven of the controls (18 per cent.) showed some crowding, in spite of the large proportion of permanent teeth unerupted at these ages.

The comparison of the amount of *caries* in the permanent teeth of the two groups has been set out in Table III. This shows the average number per

TABLE III.—*Number per Head of Carious or Extracted Teeth in Rickets and in Control Groups.*

| — | | RICKETS. | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Temporary teeth. | | | Permanent teeth. | | | |
| | | Molars. | | | Molars. | | | |
| Age-group. | Cases. | Carious. | Extracted. | Per head, carious and extracted. | Carious. | Extracted. | Carious incisors.* | Carious pre-molars.* | Per head: All teeth of second dentition, carious and extracted. |
| 6 yrs. .. | 10 | 19 | 31 | 5·0 | 6 | 1 | 0 | — | 0·7 |
| 7 „ .. | 15 | 26 | 61 | 5·8 | 12 | 2 | 0 | — | 0·9 |
| 8 „ .. | 6 | 8 | 33 | 6·8 | 13 | 0 | 0 | — | 2·2 |
| 9 „ .. | 8 | 11 | 35 | 5·8 | 12 | 5 | 0 | — | 2·1 |
| 10 „ .. | 7 | 7 | 28 | 5·0 | 13 | 6 | 0 | — | 2·7 |
| Total.. | 46 | 71 | 188 | | 56 | 14 | — | — | |
| Per head .. | | 1·5 | 4·1 | 5·6 | 1·2 | 0·3 | — | — | 1·5 |
| | | CONTROLS. | | | | | | | |
| 6 yrs. .. | 10 | 17 | 32 | 4·9 | 4 | 0 | 0 | — | 0·4 |
| 7 „ .. | 7 | 8 | 40 | 6·9 | 10 | 0 | 0 | — | 1·4 |
| 8 „ .. | 12 | 27 | 46 | 6·1 | 13 | 0 | 0 | — | 1·1 |
| 9 „ .. | 7 | 6 | 20 | 3·7 | 11 | 0 | 0 | 1 | 1·7 |
| 10 „ .. | 4 | 7 | 12 | 4·8 | 12 | 0 | 2 | — | 3·5 |
| Total.. | 40 | 65 | 150 | | 50 | 0 | 2 | 1 | |
| Per head .. | | 1·6 | 3·8 | 5·4 | 1·3 | 0 | 0·05 | 0·03 | 1·3 |

* Rickets and controls; Extracted, nil.

head of carious and of extracted teeth in each group at the time of examination. All teeth extracted were, according to the parents, extracted for caries. Since the age distribution in the two groups was similar, and the average age was the same, a fair comparison should be obtained by estimating the number of carious and extracted teeth per head. The teeth of children in the rachitic group were very slightly worse than those of the controls, but the difference is so slight that no stress can be laid on it. Thus

in the control group the average per child was 1·3 permanent teeth carious or extracted, while in the rachitic group the average per child was 1·5 permanent teeth carious or extracted. Table III. shows for the temporary molars a similar comparison. The other temporary teeth are not included because it was often impossible in any given case to tell whether incisors had been extracted or else shed either naturally or prematurely. Again, the controls show a very slight superiority, but the difference is only 0·2 teeth per head (controls 5·4 per head, rachitic group 5·6 per head). As will be seen from the table, the number of cases in the various age subdivisions is small, but there is no consistent superiority of controls over rachitic cases. Another method of comparison is to estimate the percentage of teeth, either carious or extracted, in the two groups. This method was not possible for all teeth, as at these ages some temporary teeth were shed naturally, but nevertheless Table IV. shows such a comparison for temporary molars in children of 6, 7, and 8 years, and Table V. for permanent molars in all children.

TABLE IV.—*Temporary Molars: Percentage Carious or Extracted.*

| Age-group. | RICKETS. Children. | Total molars which should be present. | Carious. | Extracted. | Carious and extracted per cent. | CONTROLS. Children. | Total molars which should be present. | Carious. | Extracted. | Carious and extracted per cent. |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 yrs. | 10 | 80 | 19 | 31 | 63 | 10 | 80 | 17 | 32 | 61 |
| 7 „ | 15 | 120 | 26 | 61 | 73 | 7 | 56 | 8 | 40 | 86 |
| 8 „ | 6 | 48 | 8 | 33 | 85 | 12 | 96 | 27 | 46 | 76 |
| Total.. | 31 | 248 | 53 | 125 | 72 | 29 | 232 | 52 | 118 | 73 |
| | | | 178 | | | | | 170 | | |

TABLE V.—*Permanent Molars: Percentage Carious or Extracted.*

| Age-group. | RICKETS. Children. | Teeth erupted. | Teeth carious. | Teeth extracted. | Carious and extracted: per cent. erupted. | CONTROLS. Children. | Teeth erupted. | Teeth carious. | Teeth extracted. | Carious and extracted: per cent. erupted. |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 yrs. | 10 | 24 | 6 | 1 | 29 | 10 | 28 | 4 | 0 | 14 |
| 7 „ | 15 | 58 | 12 | 2 | 24 | 7 | 28 | 10 | 0 | 36 |
| 8 „ | 6 | 24 | 13 | 0 | 54 | 12 | 48 | 13 | 0 | 27 |
| 9 „ | 8 | 32 | 12 | 5 | 53 | 7 | 28 | 11 | 0 | 39 |
| 10 „ | 7 | 28 | 13 | 6 | 68 | 4 | 16 | 12 | 0 | 75 |
| Total.. | 46 | 166 | 56 | 14 | 42 | 40 | 148 | 50 | 0 | 34 |
| Molars filled .. | | | 12 | | | | | 21 | | |

The percentage of temporary molars, carious or extracted, is almost identical in the control and rachitic groups; the percentage of permanent molars, carious or extracted, is rather greater in the rachitic group. If we consider extractions alone, there is a considerable difference: no extractions of permanent molars had been performed among the control cases, but 14 (8 per cent.) of those of rachitic children had been extracted. This difference, however, may have been largely due to more conservative treatment for the controls, since these had had 21 teeth (14 per cent. of permanent molars) filled, as against 12 teeth (7 per cent. of permanent molars) filled in the rachitic group. Another possibility is that the deciding factor in many of the extractions was the degree of hypoplasia rather than the degree of caries, for it is a well-known fact that there is a greater tendency to extract (instead of filling) a misshapen or ugly tooth than one that is smooth and shiny.

### COMPARISON OF TONSILLAR AND GLANDULAR ENLARGEMENT IN THE TWO GROUPS.

To compare the tonsils of the two groups, each group was subdivided into three categories: (1) children whose tonsils were not enlarged or scarcely enlarged; (2) those in whom enlargement of the tonsils though definite was yet moderate; and (3) those who had had an operation for removal of tonsils, or whose tonsils were much enlarged.

TABLE VI.—*Percentage of Children with Enlarged Tonsils or Cervical Glands.*

| — | Rickets. Cases. | Rickets. Per cent. | Controls. Cases. | Controls. Per cent. |
|---|---|---|---|---|
| *Tonsils.* | | | | |
| Operation performed or tonsils large | 18 | 40 | 20 | 50 |
| Tonsils moderately but definitely enlarged | 16 | 36 | 12 | 30 |
| Tonsils scarcely enlarged or normal size | 11 | 24 | 8 | 20 |
| *Cervical Glands.* | | | | |
| Glands definitely enlarged | 29 | 64 | 23 | 57·5 |
| „ not enlarged or scarcely enlarged | 16 | 36 | 17 | 42·5 |

There was little difference between rachitic and control groups in the distribution of children in these categories. Table VI. shows that there were slightly fewer control children than rachitic children with normal or scarcely enlarged tonsils. On the other hand, if the number of cases showing some cervical adenitis is considered (excluding enlargement of the post cervical glands so often associated with an unhealthy scalp), then the rachitic children show a slight preponderance. But the difference in both cases is so slight as to be probably the result of chance.

### BREAST-FEEDING AND CARIES.

Since the children were living in their own homes, it was obviously impossible to attempt any estimate of their diet since infancy. Inquiry was, therefore, confined to the duration of breast-feeding and to the sort of food being given at the time of examination, but it soon became evident that present diet gave no indication of past feeding on account of the fluctuations in the economic condition of the families, and the consequent variation in the amount of money available for food from week to week.

TABLE VII.—*Duration of Breast-feeding and Development of Caries in Temporary Molars.*

| Duration of breast-feeding. | Cases. | Temporary molars carious and extracted. | Per head. |
|---|---|---|---|
| Under 1 month .. .. .. | 16 | 96 | 6·0 |
| Over 1 and under 4 months .. | 18 | 97 | 5·4 |
| „ 4 „ „ 8 „ .. | 6 | 28 | 4·7 |
| „ 8 „ „ 13 „ .. | 26 | 134 | 5·2 |
| Over 13 months .. .. | 7 | 53 | 7·6 |

Information about the approximate duration of breast-feeding was available in most cases, and Table VII. shows that breast-feeding for 8 months to 13 months did not prevent dental caries. The individual groups are too small for any stress to be laid on differences between them, though the figures suggest that breast-feeding, if not too prolonged, may perhaps have some value in the prophylaxis of caries.

### SUMMARY AND CONCLUSIONS.

This investigation was confined to the effect, if any, on the teeth and tonsils of school-children of vitamin D deficiency in infancy or early childhood. It does not deal with the question whether or not D-deficiency is common at school age, nor whether a deficiency at that age is an important cause of dental caries.

Forty-six children, from 6 to 10 years old, who are known to have had rickets in infancy or early childhood were compared with 40 control children of similar age.

We have no knowledge that the diet of the two groups of children differed materially when early childhood was passed. Hence we do not claim that our control group consisted of children who had always had sufficient vitamin D, but only that in early childhood the available vitamin D for members of this group was much greater than for members of the rachitic group. Moreover, this difference was sufficiently marked to leave an effect at school age on the height, weight, and bones of children of the rachitic group. These averaged 2½ in. shorter, and over ½ lb. lighter than the controls; moreover, one in four still showed deformities of the long bones, and one in five well-marked chest deformities.

The proportion of children with crowding of the permanent teeth was nearly the same in the two groups, but as most of them had only cut a small proportion of their permanent teeth, not much stress can be laid on this.

Hypoplasia of the permanent teeth (as here defined) was almost confined to the rachitic group, 22 per cent. of whom showed hypoplasia, which in 15 per cent. was fairly severe. Since only one control case had hypoplasia, and that slight, these results in children fall into line with Mrs. Mellanby's evidence that D-deficiency in young animals produces defective dental structure.

In spite of the very different incidence in the two groups of hypoplasia of the permanent teeth, the amount of caries of the permanent teeth appeared only slightly greater in the rachitic group than among the controls, and the difference is such that it cannot be held to indicate that vitamin D deficiency in early childhood is an important factor in determining the development of caries. The amount of caries of the temporary teeth was about the same in the rachitic and control groups.

Nor does D-deficiency in early childhood appear to have influenced materially the tendency to the development of enlarged tonsils or of enlarged cervical glands. The two groups were roughly similar in these respects, both showing the usual high incidence of tonsillar enlargement and cervical adenitis which we have learned to expect in children attending a hospital out-patient department.

We suggest that the very similar incidence of dental caries shown in those children who had had rickets and in the controls strongly suggests, if it does not prove, that D-deficiency in infancy and early childhood, with consequent hypoplasia of the permanent teeth, is not the main factor in determining the incidence of dental caries. Such a deficiency may be one among a variety of ætiological factors, but if it were the predominant causative factor then the incidence of caries in our rachitic group should have been far greater than among our controls. The investigation throws no light on the question whether or not D-deficiency in later childhood is a determining factor in the development of caries at this time.

Our thanks are due to the Medical Research Council, which, besides making a personal grant to one of us (H. M.), bore the expenses of the investigation. We are much indebted to Miss F. M. Westbrook, sister-in-charge of out-patients at the Queen's Hospital for Children, and to the nurses for their help, and to Miss Lorel Goodfellow for her assistance throughout.

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## THE BLOOD-PLATELETS AFTER SPLENECTOMY.

By J. Forbes Galloway, M.D. Liverp.,
late resident medical officer, willesden municipal hospital.

The three cases here described, all originally showing a thrombocytopenia, were under observation for a considerable time, so affording an opportunity of studying the changes in the number of circulating blood-platelets following splenectomy.

Case 1.—Male, aged 25 years. In the two years preceding admission to hospital he had had three attacks of hæmatemesis, with gradual enlargement of the spleen. Seven blood counts were done during the month he was in hospital before operation; the platelets varied between 69,000 and 168,000 per c.mm. (the latter after transfusion); the red cells increased from 2,130,000 to 4,700,000; the white cells varied between 2200 and 4800 per c.mm. A diagnosis of splenic anæmia was made. He died on the eleventh day after splenectomy.

Case 2.—Female, aged 64 years. For two years she had noticed the gradual onset of weakness, pallor, and abdominal discomfort; her spleen was enlarged. One blood count was obtained immediately before splenectomy, when there were 99,000 platelets per c.mm., 4,800,000 red cells, and 3900 white cells. A diagnosis of splenic anæmia had been made. Thrombosis of the superficial veins of the left calf, and of the superficial veins of the right thigh and calf, occurred on the sixth and twelfth days respectively after splenectomy. She left hospital three weeks after the operation in fair health, and her general condition continued to improve, though six months later she was confined to bed for a few days with a painful herpetiform eruption on one leg. After another 15 months she returned to hospital with generalised enlargement of lymphatic glands, one of which, on section, was found to be indistinguishable from lymphadenoma.

Case 3.—Female, aged 12 years. She was noticed to bleed profusely after tonsillectomy. Some months later she had a severe hæmatemesis, and her spleen was found to be much enlarged. She was admitted to hospital and immediately given a blood transfusion. During the ten weeks that she was in hospital before operation the blood-platelets varied between 59,000 and 168,000 per c.mm. (the latter immediately after transfusion). She had temporary paresis of one side of the body, lasting a few days, and some recurrent epistaxis, both coinciding with very low platelet counts. A diagnosis of splenic anæmia was made and splenectomy was performed. She left hospital four weeks after operation in good health. Since the operation her hair has become definitely a lighter shade. She has also had dental treatment, with some extractions, without displaying any tendency to abnormal bleeding.

The results of the observations on the blood-platelets are shown graphically in the accompanying

figures. The numbers along the base of the graphs represent days before and after splenectomy; those along the sides represent platelets in hundred thousands (continuous line) and red cells in millions (interrupted line).

Immediately before splenectomy, the platelets in the three cases numbered 90,000, 99,000, and 59,000 per c.mm. respectively. In each case splenectomy was followed by a marked increase in the circulating platelets, which reached a maximum on the eleventh day of 770,000, 624,000, and 1,024,000 per c.mm. respectively. Thereafter there was a gradual fall in the surviving cases, Case 2 having 483,000 per c.mm. on the 644th day, and Case 3 581,000 per c.mm. on the 364th day after splenectomy. Both these counts were much below the maximum figures obtained in these cases on the eleventh day after splenectomy, but still greatly above the level of the preoperative counts.

During the course of the operation on Case 1, blood obtained from the splenic artery contained 197,000 platelets per c.mm., and blood from the

FIG. 1.

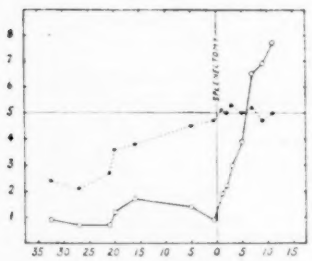
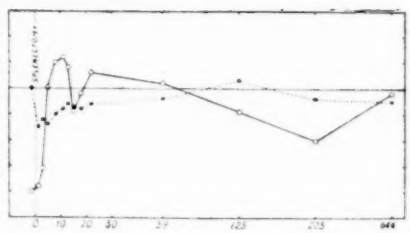


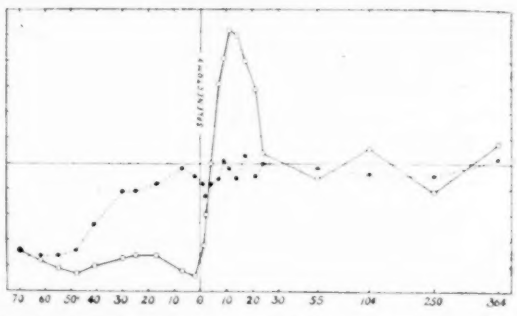
FIG. 2.



splenic vein contained 153,000 per c.mm.—a reduction of 22 per cent. during passage through the spleen.

In another case of splenectomy, not here recorded, since only the following isolated observation was obtained, blood withdrawn from the splenic vein

FIG. 3.



during operation contained 86,000 platelets per c.mm. A few seconds after its removal from the abdomen the spleen was incised, and the blood which flowed from its substance was examined and found to contain 412,000 platelets per c.mm. The blood in the substance of the spleen therefore contained almost five times as many platelets as the blood leaving in the splenic vein.

SUMMARY.

1. Removal of the spleen led to an immediate and great increase in the number of circulating blood-platelets. In the recorded cases they reached their maximum on the eleventh day. Subsequently they diminished in number, but still remained much above the preoperative level even after 12 months and 21 months.

2. More platelets reach the spleen in the splenic artery than leave it in the splenic vein. There is a great accumulation of platelets in the blood in the substance of the spleen.

3. The observations suggest that the spleen is an important site for platelet destruction.

# CLINICAL AND LABORATORY NOTES

## A CASE OF ACUTE HÆMORRHAGIC PANCREATITIS.

BY W. N. P. WAKELEY, M.R.C.S. ENG.,

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THE chief interest in this case of acute pancreatitis lies in the large number of biochemical tests that were carried out. It may be said that in such a severe abdominal catastrophe it is not justifiable even to wait the half hour necessary for carrying out Loewi's mydriatic test, but it may be pointed out that, during the time taken over the various investigations, anti-shock measures were instituted—these being imperative whether or no any other tests or estimations were performed. The patient had a very severe acute diabetic condition, and the estimations that were made proved that she had a well-balanced amount of insulin before operation.

A robust and healthy woman of 52 underwent cholecystectomy by Mr. C. P. G. Wakeley on June 24th, 1931. She had had one attack of biliary colic, but was never jaundiced. At operation about a dozen gall-stones, the size of sago grains, were found in a very thickened gall-bladder. Her recovery was normal in every way, and she was discharged on the eighteenth day. Both before and after the operation the urine was normal, and contained no sugar, acetone, or albumin.

Nearly a month later, on July 19th, after the midday meal, she commenced to vomit, and an hour or so afterwards complained of severe abdominal pain, which was mainly confined to the epigastrium. The vomiting was persistent —"she could not even keep water down." Her doctor, who was called in during the evening, gave her morphia gr. ¼, without alleviation of the pain, which persisted up to July 21st, the day of admission to hospital, but was less severe on that day. Her bowels had been open daily before this attack, but not afterwards. She had no hiccup, but flatulence had been considerable.

On admission to hospital, two days after the attack had begun, the patient was extremely collapsed, with sunken face and anxious expression. No cyanosis of the face or extremities was observed. Her tongue was dry and slightly furred. The pulse-rate was 150 per minute, the temperature 102° F., and the respiration-rate 25 per minute. There was generalised, moderate distension of the abdomen, and only a slight increase of muscular tone. Rigidity was absent, even in the epigastrium. Tenderness was mainly confined to the left side of the abdomen and, if anything, was more marked below the umbilicus. Slight ballooning of the rectum was found on digital examination.

The following tests were carried out, some of which were necessarily done after operation, but the diastase and blood-sugar tests were completed before operation, thus establishing the diagnosis.

*Urine.*—Reaction, acid; albumin, a trace; sugar, +++; ketonuria, Rothera +++, ferric chloride, a trace; urinary diastase, 230 units.

*Blood.*—Sugar, 0·526 per cent.; serum diastase, 160 units.

Loewi's mydriatic test was strongly positive. The van den Bergh showed a delayed reaction of 0·3 units. Fæces obtained at autopsy were normal in every way.

The patient was given 80 units of insulin and subcutaneous saline. Avertin anæsthesia was used, and at operation free blood-stained peritoneal fluid and much fat necrosis were seen. The peritoneal cavity was drained and the abdomen closed, but the patient died one hour after operation.

At autopsy diffuse hæmorrhagic necrosis of the pancreas and abundant fat necrosis of omentum and peritoneum was seen. The liver showed marked fatty degeneration. No stone was found in the biliary tract, although there was dilatation of the common bile-duct.

The more interesting points in the case may be summarised as follows:—

(1) The large number of biochemical tests that it was possible to carry out, clearly proving the condition before operation. (2) The unusual severity of the diabetic condition, which is explained by the almost total destruction of the pancreas and the long duration of the condition (50 hours). (3) The absence of cyanosis, which is said to be an important sign. The notes of all the cases of acute pancreatitis which have occurred in this hospital during the last ten years—they number five—have been examined, and none of them have any mention of cyanosis. (4) The unusually high temperature for this condition; this, perhaps, is best explained by the marked degree of generalised peritonitis. (5) It was also noticed that when first under the influence of avertin the condition of the patient improved considerably. (6) The absence of rigidity of the abdominal musculature; this was probably due to a combination of poor and exhausted musculature, with the extremely collapsed condition of the patient.

My thanks are due to Mr. C. P. G. Wakeley and Mr. Yates Bell for permission to publish this case, and to Dr. R. D. Lawrence for the advice that he gave and the tests that he carried out.

## OCCUPATIONAL SPASMODIC RHINORRHŒA.

By E. Watson-Williams, *M.C.*, M.B. Camb., Ch.M. Brist., F.R.C.S. Edin.,

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Spasmodic rhinorrhœa affords a good example of the curious group of diseases known as "allergic." In such cases often enough the coincidence of first onset with an illness, change of residence or of occupation supplies a valuable clue to the ætiology. But in others, although the periodicity or other circumstances point strongly to an occupational cause, the connexion is quite obscure; the attacks pursue the patient from one occupation or residence to another. Again, there may be no material change in the occupation to account for the sudden appearance of attacks; in these cases the patient is prone to ascribe them to shock, over-work, or nervous strain, recognising clearly the "nervous" element in the causation. Before proceeding to dermal testing and desensitisation, or even to operation, it is worth while to spend time in a careful investigation of the circumstances and of the mode of life of the patient. This may elicit some apparently trivial clue, on pursuing which the case becomes "Quite simple, my dear Watson!"

Case 1.—Miss A., aged 28, came to me in June, 1927, complaining of sneezing attacks, associated with intense watery nasal discharge, irritation, and watering of the eyes; and during about a year nocturnal asthma, sufficiently severe often to wake her up. The attacks came on at any time of the day, and throughout the year, though they were worse in sunny weather. They had started four years' previously, and had at first been ascribed to hay-fever. She lived with her widowed mother who kept a village shop. I inquired about animals; they had had a cat and had kept poultry "for years"; she did not think these could be concerned, for when she stayed with a sister who also had fowls she was quite free. Her own view was that the extra work entailed in looking after the shop and nursing her mother during a severe illness in the spring of 1923 had brought on the attacks. The nose appeared quite normal, but she had waited for a day when the attacks were better to come in to see me. Further questioning showed that from the time of her mother's illness she had taken over a large part of the domestic work, including feeding the fowls, collecting eggs, and cleaning the fowl-house. She agreed to get someone else to do this, and finding the attacks disappeared, gave up keeping poultry with complete relief from the attacks.

Case 2.—Miss B., aged 25, a wholesale chemist's assistant, came to me on Sept. 18th, 1928, complaining of constant colds and violent sneezing attacks—"my nose simply pours." The attacks began rather suddenly nine months before, and she thought they must be due to intensive study for her final pharmaceutical examination which she had passed in October, 1927; she had been working in the same dispensary for five years. The attacks were clearly connected with her work, as they never started on Sunday nor when she was on holiday. The obvious advice was to abandon her profession, but as usual this was not practical politics; also, she had been dispensing for some years without trouble. Further questions elicited that the attacks usually came on about 4 P.M. and often lasted over the next day, seldom longer. They tended to be most frequent on Tuesdays and Fridays. The nose on examination appeared quite normal. The only factor to explain why work she had done for so long without trouble should suddenly become noxious was the passing of the examination! That is to say, she was now fully qualified, and employed in handling poisons, including "dangerous drugs," which had formerly not been part of her work. Tuesdays and Fridays were the days when "stocks" of these drugs were usually made up. Cocaine did not affect her. I advised that she should try leaving off the handling of opium and its derivatives, to which her employer agreed. For a month she was quite free from attacks. Further experiment showed that she could handle opium, extract of opium, tinct. opii, or liquor. morph. without suffering; but whenever she had to put up powdered morphine sulphate or tartrate the attacks followed. Wearing a mask did a little to mitigate the distress. The only attacks she had after this could be directly traced to handling these drugs, usually when other dispensers were on holiday. Since she left her employment to get married she has been entirely free from rhinorrhœa.

Case 3.—Mr. C., aged 45, came to me in September, 1931, complaining of severe attacks of sneezing followed by intense nose-running, coming on every Sunday morning; by the evening he was almost prostrated, and felt very unwell all next day. The attacks had been going on for 13 years, during which time he had been an ironmonger and a lorry driver in the North of England, later a gardener in Bristol, and now a cemetery attendant. He had now to work on Sundays occasionally, and the attacks came on as regularly then; the only time he was free was when he was in camp with the Territorials at the seaside—an inland camp did not help. Employers did not like a man who was always ill on Mondays, so he had become a teetotaller, except during the time when he was in camp. I wondered if beer was a cure, but he had had the same idea and given the suggestion sufficient trial to convince him of its futility. He nearly always spent his Saturday afternoons in his own garden; flowers would not be in season all the year round but could it be bone manure? No, for the attacks came on even when he had not been in the garden. He had no dog, and had only had a cat for four years. The attacks

(*Continued at foot of next page.*)

# MEDICAL SOCIETIES

## MEDICAL SOCIETY OF LONDON.

AT a meeting of this society held on Nov. 23rd, the President, Mr. HERBERT TILLEY being in the chair, a discussion on the

### Methods of Determining Liver Function

and their value was opened by Sir HUMPHRY ROLLESTON and Prof. E. C. DODDS, whose papers appear at the front of this issue.

Dr. W. LANGDON BROWN referred to a paper he read before the society some years ago,[1] and said he did not think the lipase test had been of much value to him in the intervening period; but the van den Bergh test, especially if supplemented by the icterus index, had been of definite value. The lævulose test had been rather replaced by the galactose test. As to the rest of the tests, he feared failure had to be confessed. Important was the introduction of dye tests for the gall-bladder, and on these he agreed with the remarks of both the openers. Prof. Dodds had said that the symptoms following the removal of a large part of the liver were those of hypoglycæmia and/or hyperinsulinism; recent observations tended to confirm the view that for the development of its antitoxic power the liver required a good store of glycogen. It was now known that insulin did two things: it increased the store of glycogen in the liver, and it reduced the blood-sugar, probably by storing it in the muscles. If there was a severe deficiency in the glycogen reservoirs, as in the removal, by experiment or disease, of a large part of the liver substance, the normal supply of insulin was debarred from one of its chief tasks—viz., the storage of glycogen in the liver. Not much had been done in observing the glucose-tolerance curve as a test of insufficiency, but there seemed reason to expect some advance on these lines. Dr. G. H. Tuttle had pointed out that in dogs from which the pancreas had been removed, insulin could still be detected. Tuttle hypothecated the presence of cell insulin, and quoted examples of new growths of other parts of the body which were accompanied by hypoglycæmia. Adrenalin was a hormone which led to an emptying of the glycogen reservoirs, and that was antagonistic to insulin. If there was a growth of the adrenal gland, then as insulin had lost one of its antagonisers one could understand the occurrence of a relative hyper-insulinism. He thought it was necessary to look again at the very close inter-relation between the pancreas and the liver. It should be remembered that if hepatic toxæmias were to be benefited by a storage of insulin—as he considered they were—the physician must not merely give insulin in the treatment of such conditions, but must also give large quantities of dextrose. In a proportion of cases insulin was not necessary. He had seen cholæmic coma benefit from the simultaneous giving of insulin and dextrose. Perhaps it was along the lines of carbohydrate metabolism that medicine would get a little further in the tests for renal inefficiency.

[1] See THE LANCET, 1923, i., 541.

Dr. A. F. HURST said that some test was required for early stages of liver disease, before any structural change had taken place. This was supplied by the lævulose test; it enabled one to recognise a disturbance of function which was completely recoverable, but not if allowed to proceed. Cirrhosis, or so-called alcoholic poisoning of the liver, was common in private patients. Not only was this condition found in elderly people who had been free with alcoholic consumption for years, but also in a number of bright young people who frequented cocktail parties, and were tired out with late nights and suffered from indigestion. The lævulose test then showed definite hepatic insufficiency. After a time, on a proper dietary and abstinence from alcohol, the result of the lævulose test was normal. A remarkable degree of hepatic deficiency was recoverable from completely. In gall-stone cases requiring operation the persistence of symptoms after operation was often due to associated hepatitis, perhaps also to cholangitis. Should there be evidence of infection after operation he advised the giving of a large amount of hexamine and Epsom salts, as much as grs. 300 of the former. Olive oil could be given before meals, with the same object. The question had been discussed whether catarrhal jaundice was due to hepatitis. He considered there were two types of cases clinically indistinguishable, one due to real hepatitis, and a commoner one due to gastro-duodenal catarrh and obstruction. He had found that most of the cases of catarrhal jaundice gave a normal lævulose reaction. He wished to insist on the great value of the lævulose test, which did not greatly differ from the galactose test.

Dr. J. W. MCNEE pointed out that it was the discovery of methods of estimating the blood-sugar which made possible the extraordinary series of experiments which Mann carried out. Mann was able to remove from a number of animals so much that the abdomen contained no more than kidneys and suprarenals. Afterwards, up to 30 hours after the operation, provided the blood-sugar was adequate, the animals walked steadily, almost as if they were normal. None of the hepatic tests was really reliable for most of the purposes they were intended for. He agreed that the van den Bergh test was valuable in differentiating clinical cases of jaundice, but it did not come up to expectations. It had, however, given great help in the experimental investigation of hepatic disease. Dr. Hurst's results did not, he said, accord with his own observations. As a physician his chief anxiety was to know what margin of safety existed in a given case. It would be useful to know whether there was any terminal test, or whether certain tests developed in a definite order. He did not think much advance could reasonably be

(*Continued from previous page.*)

started before church time, so incense could not be blamed. The only difference from ordinary routine that applied to Sunday was that he got up two hours later, hardly a sufficient explanation. However, this supplied the clue; on Sunday he cooked himself a hot breakfast of bacon, on other days he had tea and cold food. I advised him to give up his bacon—a plan from which he was averse—for he was very fond of it, and it never gave him indigestion. He left me in much the same mood as Naaman the Syrian after his first visit to Elisha. Like Naaman, however, he resolved to give the simple prescription a trial. A month later I had a letter apologising for not coming to see me again, "as it was quite unnecessary; I have not had another attack."

Although few cases show its value so clearly as the above, they seem worth citing in order to illustrate the importance of a careful anamnesis.

expected until more was known about hepatic physiology. He uttered a warning against taking the results—for instance, in uric acid metabolism—arrived at in dogs as necessarily applying to human patients. The van den Bergh reaction was of particular use in diagnosing damage from salvarsan injections. He had found it also of value in watching hepatic disease associated with jaundice.

Dr. G. E. BEAUMONT said he hoped the actual state of knowledge—or the lack of it—on this subject would be disseminated among the leaders of the profession, so they might cease to expect examinees to have an intimate knowledge of what happened when doing functional tests.

Dr. N. HAMILTON FAIRLEY also spoke of the need for caution in accepting laboratory results as applicable to human beings. Mann himself said that in dogs whose liver had been removed and in which there were large quantities of indirectly reacting bilirubin, the latter did not appear in the urine of the dog as indirectly reacting bilirubin at all, but it gave a direct reaction. Mann seemed to think that the modification of the bilirubin was dependent not only on the passage through the hepatic cell, but it could be as well reproduced in the dog in its passage through the renal cell.

Dr. C. E. NEWMAN said that the van den Bergh reaction was valuable in detecting jaundice before it was evident clinically, even while the quantity of pigment was normal. When a patient suffering from obstructive jaundice commenced to get an increase in the delayed pigment present, it was a sign that the liver was being grossly damaged.

Sir LEONARD ROGERS said that while he was in Calcutta experiments were made with the object of ascertaining the condition of the liver function in amœbic liver abscess, and he tried to persuade surgeons to aspirate these abscesses instead of incising them, as the latter invariably brought in its train a secondary infection. But he was able to establish that patients had been cured by removing the pus from the liver.

Dr. A. P. CAWADIAS thought much of the present uncertainty would vanish if the physician ceased to confuse the hepatic insufficiency of the physiologists who took away a large part of the liver, with that seen clinically, when there was compensatory effort on the part of other organs. If practical results were to be obtained, tests of hepatic efficiency must be interpreted in the light of clinical observation. Liver cells were about the most fragile in the body, and when obstruction of bile-ducts occurred there was a lesion of the liver as well.

Sir WILLIAM WILLCOX agreed that many of these tests were not true tests of liver function, they were modified by so many other conditions. What clinicians wanted to know when they were doing a liver function test was, what was the condition of the liver cell, not so much in regard to jaundice, but in reference to the general condition of health, indeed of life itself. He had seen a large number of deaths from icterus gravis, acute hepatic insufficiency; he saw many in the war, and also a number due to salvarsan. The illness preceding death was longer than in the case of hyperglycæmia. In icterus gravis the symptoms commenced rather like those of insulinæmia. In many cases the temperature rose to 105° or 106° F., and often an acute nephritis condition accompanied the liver disease; within a few hours of death there was a high blood-urea. He looked forward to the establishment of some test, like the blood-urea test, which would give a quantitive measure of the efficiency of the liver. Admittedly the best test at present available was the lævulose test, as it gave an indication of how the liver was working.

REPLY.

Sir HUMPHRY ROLLESTON, in reply to Sir Leonard Rogers, said that amœbic dysentery, at any rate in Calcutta years ago, was very prolific, in subsequent years, in producing definite cirrhosis.

Prof. DODDS said he did not think there was much difference in the values of the lævulose and the galactose tests, but he agreed with Dr. McNee that the latter was of little use except in conditions associated with jaundice, whether the jaundice was catarrhal or obstructive. He did not think it was intended to put forward hypoglycæmia as the sole explanation of the symptoms of acute hepatic insufficiency. He did not see how figures could be interpreted clinically unless they were first worked out experimentally.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF OBSTETRICS.

AT a meeting of this section on Nov. 20th, with Mr. VICTOR BONNEY, the President, in the chair, Dr. LOUISA MARTINDALE read a communication on recent advances in

### X Ray Therapy in Uterine Disease.

During the last few years, she said, the technique of deep X ray therapy had advanced rapidly. This advance had been in part due to improvement in the various types of apparatus and hot cathode X ray tubes, and in part to a far-reaching clinical research on the late or end-results in treated cases. The technique of using X rays for non-malignant uterine disease (glandular hyperplasia of endometrium, fibromyomata, and adenomyomata) had undergone three stages of development in the periods 1902–13, 1920, and 1927–29. In the second period the "crossfire small field method" was used. The radiologist worked at a lower voltage, using 18 or more portals of entry, filtered through 3 mm. of aluminium, and gave the treatment every three weeks, the total treatments being four to six. Béclère, of Paris, used larger fields and gave the treatment each week or each fortnight. In 1920 was introduced a higher voltage in the 1° current, 0·5 zinc was used as a filter together with 2 mm. of aluminium, and the portals of entry were reduced to four. Also, there was only one sitting, lasting 3½ to 4½ hours. It was now possible in cases of climacteric hæmorrhage to give a castration dose, sufficient, that is, to ensure a permanent amenorrhœa, in from 35 to 90 minutes. In a large series of cases of metropathia hæmorrhagica collected by Gauss and his colleagues, 95 to 99 per cent. were declared to be clinically cured by this technique. The treatment had been valuable in 98 per cent. of about 18,000 cases treated by deep X ray therapy which were followed up. The contra-indications were well known to be the following: uncertainty in diagnosis, possible pregnancy, submucous fibromyomata, pedunculated subperitoneal fibromyomata, urgent pressure symptoms, dangerous hæmorrhage, necrobiosis, fibroid complicated by possible malignant disease, very large fibroids, and suspicion of serious disease in another viscus. These contra-indications definitely limited the number of cases it was safe to treat by deep X rays. In Dr. Martindale's own cases 52 per cent. had been dealt with by operation, 44·8 per cent. had

been X rayed, while 3·2 per cent. were treated by radium.

Temporary amenorrhœa or sterilisation was attained with a dose of 28 per cent. of a unit skin dose. Menstruation occurred once or twice after the treatment, and thereafter ceased for two to three years, after which it was resumed. This method was used as long ago as 1912 for salpingitis, pelvic peritonitis, and tuberculosis to improve the general condition and prevent those relapses which were liable to occur during the menstrual period. Some used it in carcinoma of the breast. Dr. Martindale had proved its usefulness in cases of menorrhagia in younger women, whom no other treatment cured. In three cases the temporary stoppage induced was followed by the birth of healthy children. Deep X ray treatment was the treatment de luxe for climacteric hæmorrhage and for small interstitial fibroids in women of over 40 years of age.

As regards malignant disease of the uterus, the Erlangen clinic had recently published some results to show improved technique. In operable cancer of the cervix in the years 1916–21, 56 per cent. of the women were symptom-free and able to work, and in 1922–26 68 per cent. of borderline cases were able to do so five years later in each class. In carcinoma of the body of the uterus the corresponding figures were 63 and 75 per cent. The modern technique for carcinoma of the cervix and fundus included deep X ray therapy, given either by the one-treatment method or by the fractional method. The improved results were due not alone to newer types of X ray installation, but also to the more general acknowledgment on the part of gynæcologists of the need for better care of the patient, both before and after radiotherapeutic measures—e.g., longer hospitalisation and measures to accelerate metabolism and thus eliminate the products of malignant degeneration.

DISCUSSION.

Dr. N. S. FINZI agreed about the successful results attained by deep X ray therapy in fibroids and menorrhagia; but he did not think that the large size of the fibroid was a contra-indication to this method. In earlier days irradiation took longer than now, but the results, he claimed, were as good. In some cases he now gave the required dose of rays in two sittings, in others at one. For malignant disease he did not think deep X rays were being used in this country as much as they should be. Usually the best results followed combined X ray and radium treatment.

Dr. BETHEL SOLOMONS (Dublin) said that eight patients had come to him with malignant disease of the abdomen after X rays had been used in the treatment of fibroids. Admittedly he did not see how such cases could be avoided; patients might have at the time malignant disease outside the uterus which was not diagnosable. One woman had X ray treatment for fibroids, and developed double malignant ovarian tumours afterwards. He had the opportunity of opening the abdomen and found the fibroids smaller than before but still present.

The PRESIDENT said he had always held that X ray therapy was the wrong form of attack for fibroids. To destroy healthy ovaries for a diseased uterus did not seem sound as a principle, though sometimes, in suitable cases, he advised it himself. The treatment for a fibroid was to remove the fibroid. In former days irradiation might have been required because of the poverty of surgical technique, but now that this had been improved the bulk of fibroids could be surgically removed and the woman left normal.

Dr. MARTINDALE, in reply, said she had always contended that myomectomy was the ideal treatment for fibroids, but if in the case of small fibroids one could cause amenorrhœa and do away with the hæmorrhage—and there was still a 1 per cent. operative risk—irradiation should be considered, especially in cases of climacteric hæmorrhage where it seemed that nothing but hysterectomy would help.

Dr. BETHEL SOLOMONS read a paper on

## Obstetric Methods at the Rotunda Hospital in 1909 and 1929.

His comparison of methods and procedure in the two periods was based, he said, upon an experience of some 20,000 labours. In 1909 the practice carried out in two stone floor labour wards measuring 27 ft. by 18 ft. showed what excellent work could be done in unpleasant surroundings. Fifteen per cent. of the cases at the Rotunda required serious operative treatment, including lower segment Cæsarean section. He considered that the need for an intelligent understanding of physiological labour, with observations from palpation and rectal examinations, and the avoidance of vaginal examinations could not be overstressed in the type of case in which interference might be required at any time. In 1909 reliance was placed on the pelvimeter. If an X ray plant was available, radio-pelvimetry should be used, as he considered that gave the best results. He was now endeavouring to see how far he could base his diagnosis on his method of external measurement, which he had already published; it was good for basing an opinion on a case before labour began, and also in following the subsequent course—i.e., as to how the head would fit into the pelvis. This avoided the necessity for internal examination. Of 212 cases with small measurements 83 were delivered spontaneously, while 129 required some operative interference. This showed the value of external pelvimetry as a guide to treatment. At the present time at the Rotunda control of the fundus in the third stage was not practised, and no ill-results had been traced to this policy.

The later period showed a marked increase of cases of accidental hæmorrhages. In 1909–10 there were six cases of accidental bleeding in each year, whereas in 1929 the number was 41. The eclampsia figures in the two periods remained fairly stationary. In 1929 there were 27 severe cases of eclampsism. The comparatively large number of cases of albuminuria in the later period was probably partly due to the earlier and more frequent recognition of it during prenatal care. The treatment of eclampsia at the Rotunda remained the same, except that venesection was the routine when the blood pressure was 160 or over, or the patient had headaches or cerebral congestion. There was no need to plug the vagina for accidental hæmorrhage. It was more safely treated in hospital than elsewhere, but with a good nurse for day and one for night it could be dealt with at the patient's home.

Why, he asked, had there been at the Rotunda 98 cases of toxæmic accidental hæmorrhage, and 50 cases of the non-toxic variety in four years? With regard to induction of labour, in 1909–10 there were ten cases, whereas in the later two years the number was 111. Of these, 38 were carried out by medical means without ill-effects, 34 by bougies, 30 by puncture of membranes. The last was his method of choice. Uterine inertia was still a source

of great worry; oxytocic drugs had been stopped at the Rotunda. Watchful expectancy, attention to hygiene, and ordinary soporifics must be used. This policy had reduced the incidence of contraction ring dystocia. In 1909–10 forceps were used 81 times each year, the number of cases in 1929 being 137. It should always be remembered that the only posture which facilitated drainage from the uterus was the sitting posture.

A great change had come about at the Rotunda in the treatment of sepsis. In 1909 the intrauterine douche was the routine, whereas in 1929 no puerperal douches were given. The use of pituitary extract was almost restricted to the end of the third stage. Hyoscine for anæsthesia they had found to be definitely dangerous to the infant, and so its use had been discontinued. Chloroform was not employed at all; ether was the choice.

For students, said Dr. Solomons, there should be a minimum period of residence of two months, where the number of cases was large. The actual conduct of from 10 to 30 labours should be required, but notes should be submitted of cases seen in the puerperium or in labour. He strongly objected to attempts being made to learn obstetric methods without actual residence.

DISCUSSION.

Mr. A. W. BOURNE said he was convinced of the value of pituitary in small doses in a certain type of inertia—i.e., where the uterus had been, from the start, weak and fibrillating. All the accidents following the use of pituitary extract were due to the patient having been given too large a dose.

Mr. L. C. RIVETT considered that there should be no violent worrying of the uterus in the third stage, but gentle control should be exercised. The Rotunda showed a large increase in the forceps rate, but teaching hospitals must apply forceps for the benefit of students even when privately their use might not have been considered essential. Cæsarean section was practised more nowadays, since it was safer, owing to improved aseptic and antiseptic methods. The speaker had used chloroform a good deal in his cases, and without untoward results. In his opinion it was risky to turn into the world a student who had conducted no more than ten cases of labour.

Dr. W. H. F. OXLEY said his 30 years' work had taught him to do as little as possible with instruments. The chief improvements which had come about in this work were those due to antenatal efforts, to the employment of trained midwives, and the panel system, which enabled the mother to rest. He had seen very few cases of eclampsia. He stressed the supreme importance in this work of the personal care of the medical man.

Mr. EARDLEY HOLLAND favoured small wards instead of larger ones, because real quietude was essential to get the effect of sedative drugs. In the modern woman some supervision of the uterus was needed, and though the placenta was usually separated in three minutes, some pressure should be exerted on the fundus.

Dr. G. W. THEOBALD suggested that when the fundus of the uterus was very high in the later stages of labour, a catheter should be passed.

Mr. WILLIAM GILLIATT agreed with the strictures concerning chloroform. A small dose of pituitary had none but a useful effect. If abnormal hæmorrhage had occurred and the hæmoglobin was below 55 per cent., blood transfusion was valuable, and it reduced post-partum thrombosis.

Lady BARRETT said that an appreciation by the hand of an increase in the size of the uterus from before backwards was an important sign of bleeding into the uterus. It was extreme at the present day to try to dispense with pituitrin; a very small dose was often useful in uterine inertia. Gas-and-oxygen was a very useful anæsthetic in labour. Relief of pain in these cases was not only desirable for the patient's comfort, but it contributed to the prevention of damage.

Mr. J. M. WYATT said that in most hospitals in England where antenatal work had been carefully done there had been a great reduction in the incidence of eclampsia.

The PRESIDENT suggested that the process of post-partum hæmorrhage could be seen going on when one did a Cæsarean section. Before opening the abdomen in these cases he gave 1 c.cm. of pituitrin, and it required seven minutes to act; if it did not do so by the time of delivery, he gave a second dose in half an hour.

## SECTION OF COMPARATIVE MEDICINE.

AT a meeting of this section on Nov. 25th, with Dr. J. A. ARKWRIGHT, F.R.S., the President, in the chair, a discussion on

### Active Immunisation in Virus Diseases

was opened by Dr. C. H. ANDREWES. In attempting such immunisation, he said, the object should be to produce an immunity at least as good as that which followed the disease when naturally contracted. At present it seemed that we could not approach this ideal except by giving a mild, or inapparent, attack of the disease. This seemed inevitable to the people who believed that solid immunity to a virus depended upon persistence of the virus in the animal body. Apparently killed virus could only confer an immunity of a much lower order than this. The mild disease could be produced in several ways. It might be found ready-made, like vaccinia; or the virulence of the virus might be attenuated by being passed through another species, as with yellow fever; or we might induce a stable variant of the disease such as rabies fixed virus. More often these methods were impossible, and it was necessary to produce a mild disease by inoculating fully virulent material into a partially immune animal. The animal might be made partly immune actively by means of apparently killed (formolised) virus, or passively by inoculating with virus and serum at the same time into opposite sides of the animal's body—a technique known as side-to-side inoculation. The use in this way of different sites for the inoculation was necessary for some diseases—for example, dog distemper—for it appeared that if the virus and serum were mixed outside the body, little or no immunity was produced. In some diseases, of which yellow fever was one, serum-virus mixtures could be made and injected at the site without lessening the resultant immunity. Possibly in such cases the antibody-virus union either did not occur or was less stable, and dissociation took place in the body. The mechanism by which such means as this produced an attenuated disease was obscure. The introduced virus was believed to multiply, but apparently not enough or not fast enough to overcome completely the partial immunity which had been induced. Dr. Andrewes described experiments from which it appeared that after a side-to-side inoculation of neurovaccinia and antivaccinal serum a rabbit's immunity was greatly increased within 24 hours, but if the serum was given

alone, followed by virus in 24 hours, immunity to a subsequent inoculation was not produced.

Methods of immunisation by giving a mild disease might involve the danger of spreading the disease where it did not already exist. We might probably confer in most cases a disease so mild that there was no danger, but if very many animals were being vaccinated, some would be sure to respond abnormally and might develop a disease not so mild, capable of infecting others. Waldmann, Trautwein, and Pyl had reported that cattle hyperimmunised against foot-and-mouth disease might excrete virus in their urine as long as 246 days after inoculation. Studies on similar lines were badly needed in other virus diseases.

DISCUSSION.

Prof. W. J. TULLOCH reported experiments dealing with the vaccinia (variola) flocculation test. He said that the precipitate obtained by flocculating extracts of vaccinia material with antiserum contained vaccinia virus, but the virus thus treated was peculiar in that its infectivity was much diminished. This sensitised virus might be shown by intratesticular inoculation to be living. It stimulated the production of immunity and might therefore have a practical application as an immunising inoculum with reduced danger of undue local reactions or of untoward sequelæ. By filtration it had been possible to separate extracts of vaccinia into a filtrate which was flocculable but not infective, and a residue which was infective but not flocculable. The flocculable substance might be a product of the living or of the dead virus or of the invaded tissue or of a combination of these. It was tempting to suggest that the relation of the flocculable substance to the virus was akin to the relation existing between pneumococci and their specific carbohydrates.

Major G. W. DUNKIN stated that a dog which had recovered from a natural attack of true virus distemper appeared to enjoy lifelong immunity to further attacks. Instances of second or third attacks had been recorded, but in view of the admitted difficulties experienced in diagnosis of the disease it was not clear whether these reported recurrences were true distemper or some bacterial infection. He said that foot-and-mouth disease, in contrast to dog distemper, did not appear to confer any lasting immunity, possibly because there was more than one strain of virus. It had been found from work conducted on some 20 strains of dog distemper that all these cross-immunised. Immunity to dog distemper had been induced in dogs and ferrets in a number of ways. Carbolised and heated virus had been used as vaccines, but the most successful results had been obtained from formolised virus, and this method was in general use to-day. The immunity conferred by the injection of vaccine alone in one or two doses was certainly not lasting. Vaccine followed after a certain interval by living virus produced an active and durable immunity. For this, both vaccine and virus must be of known high power. The simultaneous serum-virus method recently employed appeared to give good immunity, but had not yet stood the test of time. Mixtures of serum and virus had so far proved useless for protection against dog distemper. There appeared to be a stage in the dehydration of virus stored in the semi-dried condition which would fail to reproduce the disease but which would act as an efficient antigen. Unfortunately it was not possible to say exactly how long it took before this stage was reached, because the time varied with different samples of virus, and even with the same virus on different occasions. This method was therefore not a practical one for the antigenic power varied, while the necessary tests on animals were being carried out. Subinfective doses of distemper virus known to be living did not appear to be of value.

Major Dunkin then discussed the nature of the immune state. Is it, he asked, due to the persistence of the specific antibodies in the animal system, to the constant stimulation of the antibody factory as the result of frequent contacts with open cases of the disease, or to the persistence of living virus in the animal system constituting a constant stimulus to the manufacture of fresh antibody? As the administration of virus is necessary for the establishment of durable immunity to dog distemper, it was most likely that the living virus persisted in the tissues of the immune animal.

Dr. S. P. BEDSON said that it was unknown whether an attack of psittacosis conferred lasting immunity, but convalescent serum had very little protective power, and mice which had recovered had but a poor immunity. Definitely killed vaccine of psittacosis differed from that of foot-and-mouth disease in producing good immunity. Working with herpes virus, Dr. Bedson had been able to produce good immunity by killed vaccine. The virus had been killed by formalin, and could not be reactivated by passage through an animal. He had found that the living virus did not give immunity. He suggested investigation of other methods of killing the virus, and of bringing about delayed absorption of the vaccine.

Mr. R. E. GLOVER said that in the lower animals immunisation by means of immune serum with active virus had given the best results. The danger of creating fresh centres of infection through the agency of vaccinated animals had led him to investigate the possibility of producing an active immunity with vaccines which were almost or quite inert. Certainly a comparatively solid though brief immunity might be induced by two or more doses of killed virus. Working on pigeon-pox he had produced by means of dilution and the action of formalin a series of emulsions with diminishing virus contents. Apparently a point was reached at which the quantity of living virus was insufficient to set up the disease, but there still remained an adequate amount to provoke an immunity response. At a further stage the virus was destroyed and was antigenically inert. The antigenic power of cultures of virus on tissue cultures proved disappointing. It seemed that either the body cells played a part in the mechanism of immunity to which the cells of tissue culture might not be suited or alternatively the virus in the form in which it occurred in tissue culture might be unduly sensitive to chemical agents.

Dr. M. H. GORDON, F.R.S., suggested that if the nature of one virus were worked out fully the other similar viruses might be more readily understood. He had found that the majority of vaccinia virus might be held up by a filter, and microscopical examination of the virus showed minute bodies.

Prof. J. C. G. LEDINGHAM, F.R.S., said that by working with those viruses which are within the limit of microscopical vision we had good hope of attaining a greater precision in the whole field of investigation.

Major R. R. DALLING stated that in practice immunity to dog distemper might be produced by two doses of killed (formolised) antigen or by killed vaccine followed by active virus. If antiserum and

virus are given the amount of serum governed the result; if present in excess, it would destroy the virus from the infective and antigenic point of view.

Dr. WILSON SMITH reported that he had extracted from vaccinal material a substance which would withstand boiling (thus leaving no possibility of its containing living virus) but which would give a specific precipitation reaction with vaccinal immune sera. This suggested that vaccinia virus might have a complex antigenic structure. He wondered whether the precipitating body might possibly be analogous to the specific soluble substances derived from pneumococci. If this were so, it was conceivable that the substance might be useful as a non-living immunising agent if it could be made antigenically active by linkage with a protein.

Prof. G. H. WOOLDRIDGE said that the possible persistence of infectivity of a dog after immunisation to distemper, although of no great consequence while the dog was at large, because the disease is so widespread, became a serious consideration in hospital.

Dr. R. A. O'BRIEN said that in his experience he had never had proof that the artificially immunised dog was infective.

Captain S. R. DOUGLAS, F.R.S., said that dogs with a severe reaction while being immunised had been known to pass on the disease.

Mr. J. T. EDWARDS, D.Sc., said that in India in extensive immunisation by the serum simultaneous method of cattle to rinderpest no case of transmission of the disease from the immune to the normal animals had been known. The immunity lasted longer in adult than in young animals.

The PRESIDENT said, in conclusion, that it was unlikely that dead virus could compare with living virus in quantity. He wondered how effective really large doses of dead virus given at several sites might be. The idea that a virus might be split into two bodies, one of which might be a haptene, was new and stimulating.

## INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.

AT the annual meeting of this society held at the Institute of Hygiene, Amsterdam, on Nov. 1st, one of the principal subjects for discussion was the role of

### Chill in the Causation of Disease,

Dr. J. VAN BREEMEN, the President, remarking that in Holland at all events no one doubted its influence. Prof. VAN LOGHEM set forth his conclusions in a discourse based on an extensive collective investigation of the incidence of respiratory colds (coryza). He found a rise and fall in this incidence, in all parts of the country, corresponding to the fall and rise of air temperature. Certain respiratory diseases were clearly related to some disturbance in the normal thermal regulation induced by cold. Such disturbances could be observed even in healthy children from a fall of night temperatures. In coryza and some forms of pneumonia they were serious enough to bring about an infection from "commensal" (latent) organisms.[1] His data also supported the idea that "catching cold" reduced the resistance to influenza and pneumonia. The factor of circumstances thus becomes one of primary ætiological significance.

[1] See Journal of Hygiene, 1928, ix, 28.

As regards the prophylaxis of the diseases resulting from chill, this should, he thinks, consist first of passive measures to conserve and to increase the heat of the body by external warmth, and then of active measures to increase the production of heat within the body.

Prof. H. SCHADE, Director of the Kiel Institute of Physiochemistry, contributed a paper based on studies of the different forms of illness resulting from chill in German soldiers on active service in 1916–17. It was clear that the incidence of such illness was associated with the combined action of cold, moisture, and wind, as a result of which the normal balance between the heat gained in the tissues and the heat lost to the surroundings was disturbed. To measure this condition his own frigorimeter, or that of Dorno, could be used. Charts were exhibited, showing a close parallelism between the incidence of frostbite, of catarrhs, and of muscular rheumatism, a parallelism which he confirmed by copious statistics from the German peace-time army. Schade, like others, holds that the pathogenic action of cold on the body is of three kinds. There is, first, the local action on the superficial parts, which causes a gel formation or gelosis, with hardening of tissue. This change in the skin or muscles can be readily measured by the elastometer or even by the finger. If not extreme, it is reversible by heat. Secondly, cold has a remote effect on internal or distant organs, the kidneys, urinary bladder, and intestinal tract being especially liable. Such remote effects are probably produced through the sympathetic and may be likened to that caused by adrenalin. Lastly, there are abundant proofs that cold diminishes the resistance of the body to certain infective diseases. The periods of prevalence of catarrhal chills in Schade's diagrams are regularly followed by increase of infective diseases. In various ways, therefore, singly or in combination, cold may interfere with the functions of the body. The loss of elasticity in the skin and soft parts after exposure to cold may be almost hourly observed, especially in the neighbourhood of the joints, whilst chapping and cracking indicate local cold trauma of a colloidal nature. It is important to remember that chilling has a latent period, sometimes extending over several days; the stronger the stimulus, the shorter being the latency. Its cumulative action is also a fact of great practical importance, as has been noted by van Breemen and Fortescue Fox in connexion with rheumatic disease. The organism goes on resisting up to a point, until suddenly a barrier seems to be broken down and rheumatism, perhaps a progressive arthritis, sets in, which can hardly be stopped. Moreover, the reactions to cold are very variable; if the trauma is sudden or severe the thermal defence may respond vigorously or it may be taken by storm; if the attack is slow and insidious, as is often the case in rheumatism, the defensive forces may not respond at all and resistance may suddenly give way; if it is prolonged, body heat as a whole may fail.

To illustrate the more immediate effect of impressions of cold in peno-thermal (chilly) subjects, with subnormal temperature and usually cold and clammy skin, Prof. Schade cited the case of a person, leaning for a short time against a damp wall, who was soon afterwards attacked by muscular rheumatism in the corresponding area. He emphasised the fact that the results of cold traumata, from a slight easily reversible gelosis to an actual freezing, are not demonstrable by the microscope, and that the action of cold upon the body and the disorders arising

from it have to be studied from a physico-chemical basis as problems of molecular pathology.

Dr. FORTESCUE FOX held that a condition of "chronic chill" was widespread in northern climates and a common precursor of disease, and he advocated for this condition a systematic prophylactic treatment by heat. It must be recognised that special liabilities to disease are now the rule rather than the exception. In all civilised communities there are large numbers of persons who are "candidates for disease"—shotted guns, liable to explode at a touch. Cause and effect seem to be absurdly contrasted. In predisposed subjects a local chill, such as chilled feet, may cause a variety of distant disturbances, such as albuminuria, hæmoglobinuria, cystitis, or bronchial catarrh. But in other cases, after many repeated exposures, if they are not strong enough to rouse a defensive reaction, the "creeping-in of cold" (in Schade's phrase) inevitably begins. A loss of heat amounting to a certain depression of temperature is the result, and if this is not counteracted by the addition of heat, as van Loghem points out, externally or internally (by increased metabolism), a vicious circle is set up, in which body heat and metabolism mutually suffer. Chronic chill suggests the possibility of a partial reversion towards the cold-blooded state. Having observed the condition in a large number of persons, and recorded the answers to identical questions, Dr. Fox finds that many chilly persons with subnormal temperature do not easily take cold in the respiratory passages, but often suffer from gastro-intestinal catarrh. Recurrent respiratory catarrhs are common in the pleo-thermal, who dislike heat.

The aim of treatment of chronic chill, he went on, is the restoration of normal temperatures by arousing the compensatory metabolic reaction to cold. It is known that after preliminary heating even chilly persons can bear extreme cold; with this may be contrasted the sensitiveness of chilly and rheumatic subjects venturing into the air on a cold or wintry day. In even temperate winters invalids may experience a change of 15–20° C. when they pass from a warm dwelling to the outer air. If this proves too severe a strain upon their heat-regulating powers, it is followed by the penetration of cold. The surface organs of locomotion, muscles, and joints, are easily and first affected, although chill may be only one among many contributory causes.

Heat seems to play an essential part in the treatment of these cases. It may, Dr. Fox believes, be made to undo point by point, or at least to mitigate, the harmful effects of cold in many tissues, from their earliest stages of pain and stiffness to the later phases of degeneration and immobility. He advocates for all frigo-sensitive persons a prophylactic course of thermal treatment at the beginning of each winter or at the New Year, as a protection against the chilling winds of spring. The candidature for a variety of diseases might thus, he believed, be more or less annulled. Grades of heat, often alternating and repetitive, with weaker or stronger mechanical stimuli, carefully following individual indications and checked by measurements of reaction, were an effective remedy for chronic chill, and might be at the disposal of the skilled operator, with comparatively simple appliances.

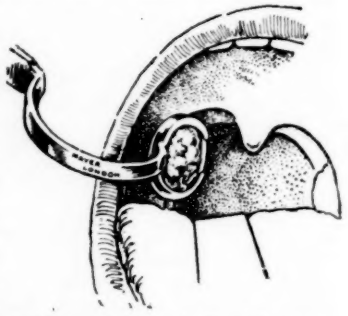
DISCUSSION.

Dr. D. REINDERS (Bussum) pointed out that an important part of the treatment of pulmonary tuberculosis at sanatoria consisted in hardening the patient against cold. Active tuberculosis commonly began with a cold or influenza, the focal infection of tonsil or mouth activating dormant tubercle bacilli. On the other hand, many apical pulmonary lesions were not tuberculosis. Prof. GUNZBURG (Brussels) advocated a collective investigation on the effect of atmospheric changes on disease, and Dr. FORESTIER (Aix-les-Bains) referred to the work of Prof. Erillat on the effect of atmospheric temperature and pressure on microbes in the air. The lowering of pressure and elevation of temperature favoured their multiplication, and mist or cloud, by supporting them, might be favourable to their activity.—Dr. HIRSCH (Berlin) referred to the observations of Freund and others at Reinertz, that rheumatic pains were associated with definite changes recorded at the Meteorological Observatory, especially with cold air currents, lowering of temperature seeming to have little influence. The increase of rheumatic pain in a warm bed was proverbial. The coincidence with weather changes might be explained by a loss of the power of rapid adaptation.—Dr. E. P. POULTON (London) referred to Hill's katathermometer as the best means for measuring the cooling effect of the atmosphere. As regards common colds, paroxysmal stimulation should be separated from infective conditions. With Dr. E. C. Warner he had found that when basal metabolism was low the temperature of the back of the hand was low, but not the surface temperature of other parts of the body.

# NEW INVENTIONS

## SPATULA FOR THE TONSILS.

IT is difficult in the ordinary way to withdraw from the mouth pus expressed from the tonsils, either for demonstration to the patient or for bacteriological purposes; and the ordinary swabbing of the throat is unsatisfactory in cases of tonsil infection owing to the liability of oral contamination. I have therefore designed a simple but I think useful spatula for use in the examination and treatment of tonsillar sepsis. It is shown in use in the illustration. The instrument is made of stainless steel and is similar to a simple tongue depressor with fenestrated end, the difference being the addition of a gutter 3/16 in. wide, encircling the upper surface of the fenestrum and open opposite the handle. The end is shaped and placed at an angle to the handle suitable for application against the tonsil, and the edge of the fenestrum is slightly blunted. After the patient has gargled with an antiseptic and subsequently with sterilised water, the instrument is placed against the tonsil with an outward pressure to empty the crypts; then a slight upward movement is made to collect the pus in the gutter. The instrument can now be removed from the mouth without contamination with other oral fauna and flora, and the pus collected on a sterile swab for bacteriological purposes or demonstration to the patient. As the gutter encircles the fenestrum,



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# REVIEWS AND NOTICES OF BOOKS

## The Fundus Oculi.

*A Pocket Atlas and Text-book.* Second edition, revised and enlarged. By G. LINDSAY JOHNSON, M.A., M.D., F.R.C.S., late Ophthalmic Surgeon, West End Hospital for Nervous Diseases. With numerous illustrations in the text and 54 coloured drawings selected from the author's cases by Arthur W. Head, F.Z.S. London: Adlard and Son. 1931. Pp. 215. 12*s.* 6*d.*

## The Fundus of the Human Eye.

*An Illustrated Atlas for the Physician.* By ERNEST CLARKE, C.V.O., M.D., F.R.C.S., Consulting Surgeon to the Central London Ophthalmic Hospital. London: Humphrey Milford, Oxford University Press. 1931. 51 plates. 18*s.*

EACH of these books is designed to meet a growing demand for pictorial representation of the fundus oculi both in health and disease, on the part not only of students of ophthalmology, but of the large number of general practitioners who now use the ophthalmoscope as a routine. In Mr. Lindsay Johnson's book the coloured pictures are the same as in the first edition published in 1911, but the text is slightly enlarged. It covers a large part of the field of ophthalmology and contains evidence of an original mind. Mr. Lindsay Johnson had previously shown in "The Mammalian Eye," an atlas embodying the results of the work of many years carried out in the gardens of the Zoological Society of London, his interest in the comparative physiology and pathology of the fundus. The fundus conditions pictured in the book under review are typical of most of the normal and abnormal conditions generally seen. The interest of each picture is enhanced by legends giving the salient points to be noticed, and in most cases by a summary of the notes of the particular patient from whom the picture was drawn.

In Mr. Ernest Clarke's book the letterpress is reduced to a minimum, the drawings (by Hamblin's artists) are on a somewhat larger scale and are all excellent. The conditions chosen for illustration are typical of those generally seen in any ophthalmic clinic and include some interesting examples of retinitis associated with focal sepsis, not often pictured. We could wish that the subject of retinal detachment was more fully illustrated, since shallow detachment in the early stages can easily be missed by the student. The detection of holes in a detached retina, too, has recently become so important in view of Gonin's methods of treatment that examples of this condition would have been welcome. There is one example in Haab's Atlas of Ophthalmoscopy, a translation of which was made by Mr. Ernest Clarke himself, as he tells us, 35 years ago. The only English translation of this book now in print is that published by the British Optical Association in 1928, and only one variety of hole is there pictured. It is of course unreasonable to expect that any book should give pictures of all the manifold varieties of abnormal conditions of the fundus oculi that we come across in practice. Those pictured in the Transactions of the Ophthalmological Society alone would fill a large volume. The aim of such atlases as are here reviewed must be to help the student to recognise the more common conditions when he sees them, and to distinguish from them any rarer condition which he may come across. As guides of this sort either of these books should prove extremely helpful.

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(*Continued from previous page.*)

the instrument can be used for both tonsils. If tonsillectomy is declined, the other forms of treatment —e.g., ultra-violet radiation, diathermy, London paste, &c.—are best preceded by the emptying of the tonsillar crypts. With this instrument I claim a more complete emptying is feasible and the infected material can be removed from the mouth.

The instrument has been made for me by Messrs. Mayer and Phelps, of 59–61, New Cavendish-street, London, W.1.

C. BERKELEY WAY, M.B., B.S. Lond.

## Die Allgemeinerscheinungen der Hirngeschwülste.

By F. KEHRER, Professor and Director of the Psychiatric and Neurological Clinic, Münster. Leipzig: Georg Thieme. 1931. Pp. 116. M.10.50.

THIS useful monograph deals at some length with the general symptoms of intracranial growth, and amplifies traditional clinical doctrine by the addition of sections dealing with circulatory and respiratory disorders that may be found to accompany the usual syndrome. Reference is made also to modifications of body temperature and to defective control of vesical and rectal function.

Considerable space is devoted to what is regarded as a new group of general symptoms discovered and studied by the author, consisting of certain pain-reflexes and painful reactions elicited through sensory nerves. For example, pain is produced on deep pressure over the great occipital nerve at its site of emergence, and it may be accompanied by such reactions as flushing of the face, and some bending back of the head to the same side. Another sign consists in analogous pain on pressure over the trigeminal nerve where its three branches emerge on the face. Prof. Kehrer affirms that these symptoms are indicative of a rise of intracranial tension such as reveals itself in papillœdema and otherwise. A number of other reactions or reflexes are also described, some of which—e.g., pain reactions in the lower limbs—must appear rather remote from the ordinary conceptions of what a cerebral tumour can produce by its expansion. Extensive clinical experience alone can determine how much significance can properly be attached to these manifestations.

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## The Vegetative Nervous System.

Vol. IX. of the Association for Research in Nervous and Mental Disease Publications. London: Baillière, Tindall and Cox. 1931. Pp. 832. 45*s.*

THE "growing points" of present-day neurology are vastly different from those of but a comparatively few years ago. This volume is actually the largest of the series of publications hitherto issued, representing the annual transactions of the Association for Research in Nervous and Mental Disease of America. That a volume of its dimensions, embodying original work from some 42 contributors, should be devoted to the sympathetic system alone, must immediately impress the reader not only with the immensity of the field, but also with the prominence which sympathetic problems have come to assume.

The book is divided into five sections, dealing respectively with morphology, physiology, experimental and clinical investigation, and therapy.

A praiseworthy effort has been made, in the last two of these, to discuss aspects which may be said to have a direct bearing on clinical practice and therapeutics, for it is evident, equally, that much of the material of the first three is as yet without direct significance for clinical application. To specify the various articles which may strike the reader as full of promise for further research and likely to prove permanently valuable would be a somewhat invidious task. Those which are concerned with the vexed question of the sympathetic supply of cerebral blood-vessels are of peculiar interest, as well as others discussing the relation of the sympathetic system to pain. Tonus of the musculature, as may be imagined, receives much attention. From the standpoint of treatment mainly surgical matters are examined, more particularly that of sympathectomy in angina pectoris. It is curious that least attention is here paid to the pharmacological aspect of the general subject.

The volume testifies richly to the activity of the American schools of medicine and to the enthusiasm with which a particular subject is worked up and its various features studied by the Association under whose ægis these publications appear.

## Occupational Diseases in Relation to Compensation and Health Insurance.

By ROSAMOND W. GOLDBERG, Ph.D. London: P. S. King and Son. 1931. Pp. 280. 18*s*.

THIS book sets out much useful information regarding workmen's compensation and health insurance. Its outlook is essentially legal and American. The chapters in which occupational diseases and the hazards of industries are described are readable, but superficial in presentation; we doubt whether, from the facts given, a barrister could gather sufficient material to conduct a claim in court; certainly they would not be of much service to a physician in helping him to recognise a trade risk. The rise of American compensation legislation, and the way it has been based on European and particularly on British precedents, is well told. We miss any exposition of the law dealing with silicosis in the United States, where it is somewhat nebulous, or in this country, where it has just been established. Miner's nystagmus, which in Great Britain accounts for more sickness claims than all other compensation diseases taken together, is left undiscussed, presumably because little is known of it in America. Such omissions are the more to be regretted because in these days general practice is daily being concerned with the economic value of going sick from a disease covered by the Workmen's Compensation Acts.

## Malaria in Russia.

*Its Relationship to Soil and Climate.* Pettenkofer Memorial Volume IX. By Dr. FREDRICH WOLTER, Chief of the Hamburg Research Institute for Epidemiology.

THIS is an epidemiological commentary on the report of the Malaria Commission of the League of Nations (1924), published under the title "Le Paludisme en Russie des Sovjets," by Dr. I. A. Dobreitzer. The remarkable increase in the incidence of malaria in Russia in 1923 was the subject of study also at the International Malaria Conference held in Geneva in 1928.

Prior to the world war, according to Dr. Dobreitzer, 3½ million malaria cases were registered in Russia, an incidence of 215–230 per 10,000 inhabitants. Naturally these figures varied in different districts. In the Caucasus there were 800, in the Volga region 400, and in Turkestan 250 cases per 10,000. All previous malaria outbreaks were overshadowed, however, by that of 1923 when the figure rose to 5½ and even 12½ million cases. Dobreitzer, and later Martini, in writing of this epidemic have regarded it from the parasitological point of view, but Dr. Wolter points out that some other epidemiological explanation has to be found for the other epidemics, of unparalleled extent, which raged in Russia in the five years 1918–1923, as for instance: Influenza (1918), typhus and relapsing fever (1918–1922), cholera (1921–1922), malaria (1923). This epidemic sequence, in Dr. Wolter's view, can best be explained by peculiar climatic change combined with the high level of the ground-water which, consequent upon the maximum humidity of 1918–1920, was gradually receding. The tillage of land on account of the world war and the political situation has been badly neglected so that the population as a whole was rendered susceptible to epidemics. In short, the *constitutio epidemica* (Sydenham) had become established. It is surmised that this epidemic diathesis had been brought about by a preliminary scurvy epidemic in 1917.

## Chirurgie de l'ulcère gastrique et duodénal.

By N. HORTOLOMEI and VL. BATUREANU. Pp. 407. Paris: Masson et Cie. Fr.45.

THIS book provides a very complete account of the surgery of gastric and duodenal ulcers. After a short general section the authors discuss one by one the surgical measures which have been devised and used in the treatment of ulcers. They have been most industrious in their review of literature. Little seems to have escaped them. The book supplies valuable material for anybody who desires to know the efficacy of any given method and the physiological changes which result from it. The authors themselves are ardent advocates of large resections for both gastric and duodenal ulcers and prefer the Reichel-Polya or Hofmeister methods to any others. They are also convinced that some form of local anæsthesia is vastly superior to general anæsthesia. Intradural block is recommended by them and when this proves insufficient owing to the length of the operation, they supplement it with anterior splanchnic block. For irremovable duodenal ulcer they favour Finsterer's palliative resection. They have had no personal experience of jejunostomy for high or sclerosive ulcers, having never met a case where it seemed to be indicated. Cholecystgastrostomy is regarded as still under trial but its value is not assessed. All gastric surgeons will be interested in this work.

## Noguchi.

By GUSTAV ECKSTEIN. London: Harper and Brothers. 1931. Pp. 419. With portrait and 12 plates. 18*s*.

Noguchi was a very good bacteriologist who made a number of important and interesting additions to knowledge, though he did not initiate any fundamental line of new thought. This biography is a detailed and emotional narrative of his origins, his early life, the loss of a hand in childhood, his determined invasion of America, his subsequent career as a member of the staff of the Rockefeller Institute, and his death in West Africa while investigating yellow fever. It is written in a stupid kind of illiterate English, gives an entirely inadequate account of his scientific work, and is mostly occupied with details of a wayward personality much less pleasing than Noguchi actually presented to the world.

# THE LANCET.

*LONDON: SATURDAY, DECEMBER 5, 1931.*


## RADIOTHERAPY IN MALIGNANT DISEASE OF THE THROAT.

In the treatment of disease it is useful from time to time to take stock of our methods and their results with a view to clearing the way for further progress. This is especially necessary at the present time with regard to the radiotherapy of cancer, and Mr. DOUGLAS HARMER performed a valuable service in devoting his Semon lecture to this form of treatment as it affects the upper air-passages. Readers of his lecture [1] will find the subject of malignant disease of the throat considered in further detail in two volumes, by ZUPPINGER and by BERVEN, which have lately reached us. The technique of treating this condition, whether with X rays or with radium, or with a combination of the two, varies greatly in different clinics throughout the world, and we are in urgent need of that more precise knowledge which will enable us to decide, in any individual case, whether radium, X rays, or surgical excision offers the best prospect of cure. For this purpose it is desirable to have an accurate classification of malignant tumours according to their site of origin and the position and extent of their metastases, and especially according to their histology and fundamental character. Above all, such a classification must have the same nomenclature everywhere.

Dr. ZUPPINGER [2] has arranged and classified the material and experience of the Röntgeninstitut of the University of Zürich from 1919 to 1928, under the direction of Prof. H. R. SCHINZ. The method of treatment in general use during the last two years has been that introduced by Dr. H. M. COUTARD in the Radium Institute of Paris, which consists in prolonged divided doses of very hard X rays from a distance of 0·5 to 1·0 metre. But treatment has not been confined to this, for radium has been employed both by needles and surface application, and surgical extirpation is occasionally undertaken. ZUPPINGER says that one no longer hears much of radical operations for carcinoma of the pharynx, but he advises operation in intrinsic laryngeal cancer. The results have been disappointing; out of 280 cases 11 remained free from symptoms for from one and a quarter to nine years, and of these five were cases of sarcoma, while three other patients died of intercurrent diseases without symptoms of the original lesion. ZUPPINGER, in classifying the stage of growth of malignant tumours, employs Roman numerals from 0 to IV. to indicate the condition of the primary growth: 0 implies an undetected primary focus; I., a tumour strictly limited to its site of origin; II., one which has spread beyond its origin, but is still radically removable by operation; IV., extensive inoperable infiltration; and III., between II. and IV., a stage where it is macroscopically possible to excise the lesion, but prospect of radical cure is very doubtful. The letters, A to E, are used to describe the state of metastasis: A implies no clinical evidence of it; B, growth confined within the lymph glands and removable; C, fixation of the glands; D, glands infiltrating surrounding structures; and E, distant metastases.

Dr. BERVEN,[3] in his present monograph, confines his attention to malignant tumours of the tonsil. These he divides into carcinoma, lympho-epithelioma, sarcoma, and malignant mixed tumours. According to the stage of metastasis, he divides his material into three groups: Group I., in which no glands with any clinical signs of metastasis are palpable; Group II., in which glandular metastases are palpable but still freely movable; and Group III., comprising those cases in which the growth has begun to spread beyond the capsule of the lymph gland. Thus, Group I. corresponds to ZUPPINGER'S Class A, Group II. to his Class B, and Group III. to Classes C and D. The technique of treatment has been considerably improved by the use of radiation at a distance of 4 to 6 cm., which BERVEN began to employ at Radiumhemmet in Stockholm as early as 1921; since 1929 a larger supply (3 g. of radium) has been available for this purpose, and is applied in Sievert's radium gun. Treatment begins with irradiation of the tumour and regional glands by this method in order to ascertain its degree of radiosensitivity, and this is followed by local treatment, either by surface application of radium tubes or by implantation of radium needles. Glandular metastases are treated according to the group under which they fall; in Group I., where no glands are palpable, BERVEN finds that radical surgical operation does not improve the prognosis, and prefers to treat the glandular regions by "teleradium." In Group II. the best treatment is still doubtful; lately he has employed teleradium treatment of the glands together with the primary tumour, followed, if a small remnant of metastasis is still present, by block-dissection of the glandular region with implantation of radium needles. Regarding the treatment of Group III., with fixed metastases, every attempt at surgical interference will only impair the condition of the patient, and measures should be confined to a careful radiological treatment in order to afford some relief; recent results with the new teleradium technique points to the possibility of a permanent cure even in these cases. The number of cases of malignant tumour of the tonsil treated at Radiumhemmet amounts to 97, of which 86 treated up to the end of 1917 have been dealt with statistically. Of the total number 50 were carcinomata, 6 lympho-epitheliomata, 36 sarcomata, and 5 malignant mixed tumours. Of

[1] THE LANCET, Nov. 14th, p. 1057.

[2] Maligne Pharynx-und Larynxtumoren; Zürcher Erfahrungen. By A. Zuppinger. Leipzig: Georg Thieme. 1931. Pp. 188 + 9 plates. RM.28.

[3] Malignant Tumours of the Tonsil: A Clinical Study with Special Reference to Radiological Treatment. By Elis G. E. Berven. Acta Radiologica, supplement xi. Stockholm: P. A. Norstedt and Söner. 1931. Pp. 285 + 13 plates. Swed. Cr.22

28 patients treated up to 1924 by the "old technique," of external X ray treatment with surface application of radium, 7 obtained primary healing, by which is meant the disappearance of both primary tumour and metastases; of 14 cases treated up to 1927 by the new technique—teleradium followed, if necessary, by surface or intratumoral application of radium, or by endothermy—6 were primarily healed; while of 8 cases treated during 1930 by the teleradium technique, improved in the light of further experience, primary healing was obtained in 7. In the first of these three groups the disease recurred in all the patients; in the second group there was recurrence in four of the six; while in the third group only one of the seven yet shows recurrence, though here the time is, of course, too short for useful comparison. Of the four cases of lympho-epitheliomata treated before 1928, all were primarily healed, and have remained free for three years or more, except one in which death took place, without recurrence, from pneumonia six months after treatment. Of 35 cases of sarcoma, 25 were primarily healed, and 15 of these have remained free from disease for over three years.

The fact that patients come to hospital at very different stages of disease renders any attempt to compare percentages of cures somewhat fallacious, but such figures as these give grounds for hope in the future treatment of cancers of this region, which are notoriously of a high degree of malignancy, where surgical treatment can claim but very few successes. BERVEN believes that the local reaction from teleradium is less severe than that from X rays, which often produces severe dysphagia. His work abounds in careful analyses of every class of malignant tumour of this region; it is a credit to himself and to the Institute of which he is the chief, and will be of great value to all workers in this field. The progress thus far achieved makes us look forward to hearing more of English experience, and also of Prof. VON EICKEN'S work at Berlin, when the Section of Laryngology discusses malignant disease of the hypopharynx at the Royal Society of Medicine this (Friday) evening.

## EPONYMS.

THE practice of attaching personal names to diseases is recent. Dr. Isidor Fischer, Reader in the History of Medicine at Vienna, tells us that he can find but few examples in medical literature of the eighteenth century, and that only in the middle of the nineteenth did they become at all frequent. In the preface to his collection [1] he discusses how the use of eponyms has come about. To name a disease is not simply to identify it but to enable its user to classify it; and the difficulties of classifying disease are still with us, they are perhaps only now beginning to be realised. In 1869, when a joint committee appointed by the Royal College of Physicians of London first drew up their Nomenclature of Diseases, they did so with the end in view of fixing definitely, for all places, the things about which medical observation is exercised, and of forming a steady basis upon which medical experience may be safely built. The committee aimed at making their list consist as far as possible of short names—names comprised in one word or in the fewest words, and implying no erroneous or doubtful theories. They did not exclude names merely because they seemed to express vague or imperfect knowledge—such as dropsy, convulsions, palsy—because, as Dr. Farr observed, a refusal to sanction such terms as these in the registration of diseases would have an obvious tendency to encourage reckless conjecture.

When fixed names have been given to diseases their classification becomes a matter of some importance. Diseases may be classified according to their symptoms, to their causes, to their intimate nature, to the tissues or to the systems of the body that are affected, or to the parts of the body as they lie anatomically. And after much consideration the committee of the R.C.P. resolved to base classification upon anatomical considerations. Conceived on these lines the nomenclature was long in taking shape, and the ambition of the compilers to be the founders of an international nomenclature was not realised. After the first edition the French and German synonyms were omitted, and later the Latin and Greek equivalents went the same way. As time went on factors of causation entered more fully into both nomenclature and classification; culminating in a courageous attempt by the late Prof. E. S. Reynolds to group these factors under a few precise headings. In his Bradshaw lecture [2] of 1917 he named ten of these: injury, food and feeding, poisons, occupation, stress, abnormal metabolism, abnormal age changes, neoplasms, parasites, and heredity; and he drove his point home by imagining the piquant situation of a thousand healthy men and a thousand healthy women each aged twenty years, free to marry, and with no hereditary taint, put to live in a perfectly healthy island with sufficient flora and fauna to maintain life, and by forecasting the various affections from which they and their progeny to two or three generations were likely to suffer if free from admixture with the rest of the world. Reynolds was only partly successful and it was such difficulties as he encountered which led Allbutt to state so definitely that the name of a disease must not be a seal but a label. From this point of view, as Dr. Fischer aptly remarks, eponyms are the ideal names for diseases, for they say in fact nothing whatever about the nature of the disease. Eponyms have often indeed been born out of the dilemma how to label without prejudice a newly discovered syndrome of the nature of which little is known. Dr. Fischer himself thinks that the recent spate of eponyms—his collection contains more than 500 items—has had but little to do with Allbutt's principle enunciated above, or even with the desire to erect a perpetual monument to the discoverer of a new

[1] Die Eigennamen in der Krankheitsterminologie. Reprinted from the Wiener Medizinische Wochenschrift, 1929–30. Vienna and Leipzig: Moritz Perles. 1931. Pp. 144. RM.5.

[2] See THE LANCET, 1917, ii., 703.

disease, but is rather the outcome of our hasty times and the result of a tendency, visible in other departments of life, to terseness of expression. Editors of medical journals must take some share of praise or blame for the situation; to the medical editor the saving of space has become the kind of obsession that the saving of rates is to the middle class. But while convenience may well have come first, we must recognise the justice of retaining names such as Hippocrates, Galen, and Mithridates, in association with the ideal of medical fidelity, the exact use of drugs, and (at all events on the continent) the principle of immunity. In their narrower use names perpetuate the discoverer rather than the victim, with the happy exception of the legend that the first Roman emperor found the birth canal too narrow for his entrance into the world.

The names of Cæsar and Hippocrates are used everywhere but most others form a bad basis for international use. Nothing could exceed the directness and simplicity of such terms as Bell's palsy and Pott's disease, for neither of which does there seem to be a rival claimant, although the convenience in the latter case is slightly obscured by Latinists who cannot decide whether to write Malum Potti or Malum Pottii, and by the playful spirit of the continental derivatives Pott'scher Buckel and Gibbosité pottique. Similarly Legg's disease would be an admirable substitute for osteochondritis deformans juvenilis coxæ, had there not been rival claimants for priority in the persons of G. C. Perthes (Tübingen) and Jacques Calvé (Berck-Plage). The trouble is even worse with Graves's disease, a label which Sir Humphry Rolleston considers much more satisfactory than to qualify an incomplete case of exophthalmic goitre with the absurd words "without any exophthalmos or goitre"; but in this country the claim of Caleb Parry of Bath is weighty, not to mention those of Sir Henry Marsh, James Begbie, and Sir William Stokes. The matter has been neatly summed up by Dr. J. Hirschberg when he wrote "Flajani has shown the way; Parry has the priority of having first described a new disease; Graves discovered it again and pictured it more exactly; Basedow discovered it once more and was the first to describe it completely"; and so it remains on the continent Basedow's disease, lending itself to symphonic treatment in the forms Basedowoid and Struma basedowificata. Dr. Fischer has been to the trouble not only of citing the names but of documenting the claims of their owners to the description of the diseases to which their names are attached, and in so doing he has earned the gratitude of all who are concerned with precision in the nomenclature of medicine.

## WINTERING IN ENGLAND.

A MEETING is to be held in London next Wednesday to consider a public statement on the winter health resorts of this country. Such a statement will, it is hoped, show clearly that there are advantages as well as disadvantages for invalids in the present inhibition of foreign travel, and may lead people to take more interest in the proper use and development of national assets. These assets are clearly visible, without the aid of patriotism, to the discerning eye, and the names of the signatories of the announcement on p. 1263 are a welcome guarantee that the proposed statement will base itself on common-sense, not national pride. The meeting on Wednesday, if adequately attended, will give the proposal further authority, and we hope that all members of the profession who hold any views on the subject will make a point of going to it. For the question arises whether something more important than a mere statement could not come out of this gathering. Would it not be possible, perhaps, to form a small body of medical men, independent of all financial interests, who could give useful advice not only to the public but to the health resorts themselves? In the first place, if the health-seeker's curiosity is aroused by a letter to the press, it might reasonably be satisfied by a more detailed account of the general and regional characteristics of the coast and inland climatic stations. A winter health resorts committee might begin by issuing such a description in pamphlet form, and then go on to consider the ways in which accommodation and treatment at these resorts should be improved—e.g., by the grading of hotels and medical establishments. It is no part of the duty of our profession to hide unwelcome truths, and we trust that nothing will be done to advertise British institutions beyond their deserts. At the same time it is not too much to hope that organised medical interest in this particular problem might help our health resorts to stand firm by their own merits when they cease to be protected by circumstances. Their improvement might mean a good deal to the vast majority of our people who can never go abroad in any case.

Dr. Arthur J. Hall has been appointed emeritus professor of medicine in the University of Sheffield.

THE Thomas Vicary lecture of the Royal College of Surgeons of England will be given at the College at 5 P.M. on Thursday, Dec. 10th, by Colonel W. P. MacArthur. The subject is the Surgeons and Old-time Plague, and visitors will be admitted on presentation of their cards.

Dr. Vincent Dormer Harris, who died on Nov. 27th at Milford-on-Sea in his 81st year, was consulting physician to the City of London Hospital and well known as a specialist in diseases of the chest.

WE have also to record the death on Nov. 29th of Mr. C. A. Leedham-Green, late professor of surgery in the University of Birmingham.

THE Medical Directory for 1932, which has just reached us, contains 55,480 names, an increase of 445 on last year, two-thirds of which is due to additional entries in the Provinces. The medical report on British spas and seaside resorts has been revised and enlarged to 44 pages.

# ANNOTATIONS

## THE YEAR 1930.

THE vital statistics of England and Wales for the year 1930[1] do not reveal any striking departures from the trend of the last few years. The crude death-rate fell slightly below its previous lowest record of 11·6 (in 1923 and 1926) to 11·4 per 1000 persons living. It cannot be many years now before the crude rate must necessarily rise owing to the increasing older age-distribution of the population, even though the rates at ages may continue to decline. The low rate of 1930 was largely due to the relatively mild weather in the first quarter of the year, and to the absence at that time of influenza and severe respiratory epidemics. The death-rate for influenza was only one-sixth of that of the previous year, when an epidemic took place, and was appreciably lower than in any year since the 1918 pandemic. The mortality from tuberculosis continued the almost constant decline that has been in evidence since the war period, the standardised rate for 1930 of 872 per million being the lowest ever recorded, in spite of the economic depression.

There was no change, allowing for differences in the age-constitution of the population, in the mortality from cancer which has remained approximately stationary since 1925. As regards other specific diseases interest attaches to two for which new treatment has been introduced in recent years, diabetes and pernicious anæmia. In 1930 the diabetes mortality remained at roughly the same level as in the previous year, in both years the rates being higher than in any year since the introduction of insulin in 1923. It was shown in the Registrar-General's report for 1929 that the increase in this mortality since 1922 has been confined to the higher ages and that the mortality at all ages under 55 has fallen, both for males and females, since the introduction of insulin. The senile increase is sufficient to mask in the total death-rate the effect of insulin in reducing the mortality of early and middle life. It seems probable, according to the Registrar-General's previous investigations, that the mortality ascribed to diabetes at the higher ages is mainly of dietetic origin, for it fell during the period of food restriction in 1916–18 and has risen almost continuously since this ended. The new liver treatment for pernicious anæmia came into use in this country towards the end of 1927. From 1921 to 1927 the annual mortality (standardised) was round about 45 per million for males and 55 for females. In 1928 the rate fell appreciably to 30 per million for males and 39 per million for females. The figures for 1929 showed no further progress and the present figures for 1930 reveal a slight rise in the mortality to 35 and 42 per million for males and females respectively. The improvement in the rate is at the best no more than being maintained. Infectious diseases of childhood—measles, scarlet fever, and diphtheria—showed in 1930 little variation from the last year or two; whooping-cough mortality was exceptionally low.

Infant mortality touched its lowest recorded level at 60 per 1000 live births, the rates for legitimate and illegitimate children being 58 and 105 respectively. The birth-rate of 16·3 per 1000 persons living at all ages was the same as that for 1929, which was the lowest recorded since the establishment of civil registration in this country. In spite of the economic conditions the marriage-rate was 15·8 per 1000 population, with the exception of 1929 the highest recorded since 1921. The stillbirth-rate remained constant at 41 per 1000 total births, and the mortality of women from puerperal sepsis and accidents of pregnancy and childbirth showed no improvement. Deaths resulting from accidental injury by mechanical vehicles on roads numbered 6404, an increase of 40 per cent. of the total in 1927, each year showing an appreciable increase. Out of every thousand deaths recorded in 1930, 14 had this cause as origin.

These tables contain as usual a mine of interesting and valuable information on mortality by sex, age, and area. The civil tables are of less interest to the medical statistician than to the economist and the administrator.

[1] The Registrar-General's Statistical Review of England and Wales for the year 1930. (New Annual Series, No. 10). Tables. Part I. Medical. 7*s*. 6*d*. Part II. Civil. 2*s*. H.M. Stationery Office.

## THE DELEGATION OF MINOR DENTAL WORK.

SOON after the passing of the Dentists Act of 1921 the Ministry of Health asked the Dental Board to consider its attitude towards the performance of certain minor work in public dental service by other than registered dentists. After some conference between the Board and the Ministry a scheme was drawn up under which a local education authority might arrange for the charting and recording of dental disease in school clinics, as well as for the work of cleaning and polishing teeth, applying or removing dressings or temporary fillings, by students or nurses under the personal supervision and in the presence of a registered dentist who prescribes the treatment and is reponsible for its efficient carrying out. Such a dentist if operating himself may not supervise more than two such assistants at a time or more than six persons in all. Under the regulations of the Board of Education the assistant must be either a registered dental student of not less than two and a half years training or a dental nurse who has received an approved course of instruction. The Ministry of Health now proposes to withdraw the liberty to apply or remove dressings or temporary fillings, and to enable dental nurses to carry out inspection. The saving of time and money by such means and the advantage of accustoming young children to undergo dental treatment are to be weighed against the objection that supervision of such inspection might prove impracticable or that the permission would make it more difficult to enforce the statutory prohibition of the practice of dentistry by unregistered persons. In his opening address at the twenty-first session of the Dental Board on Nov. 11th, Sir Francis Dyke Acland said that the question for the Board resolved itself into this: whether, if dental nurses are allowed to perform dental inspections, there is likely to be such an improvement in the school dental service as will counterbalance any tendency which there might be, if the employment of dental nurses for inspection work were considerably extended, for the requirements as to personal supervision by dentists to be relaxed. Speaking as chairman of a large county education authority, he did not think that education authorities or county medical officers would consciously allow the law to be broken. Granted proper supervision, he thought the prospects of increased utilisation of the services of dental nurses were extremely limited, for if the dentist is not himself operating

while the nurses are inspecting he is largely wasting his time; if he is operating, the amount of inspection which he can supervise is strictly limited. But he went on to express the opinion ("purely as a layman") that properly trained nurses ought to be allowed to go to schools of all kinds by themselves to inspect and clean teeth, talking to each child about food and habits of dental cleanliness, and referring doubtful or treatment cases to the dentist at a dental clinic. This would accustom children to the idea that having their teeth looked at generally means having them made, as he put it, "to feel nice and comfortable by a nice lady." And this, he added, might lay the foundation of the tooth-mindedness which ought to take us to our dentists as naturally as to our hairdressers, whereas most of us now dread such visits as much as we dread those to our bankers. Finally, if dental nurses were allowed to be employed in this way in schools they would gradually be employed much more than they are now, and Sir Francis expressed his conviction that such employment would not lessen but greatly increase the work of dentists by implanting the habit of regular resort to the dentist which in this country has hardly yet established itself. The matter was reported to the Board but consideration of it was deferred until the February session.

## NEW WORK ON FILARIASIS.

FRESH features in the pathology of the filariasis of Porto Rico—a filariasis with nocturnal periodicity—were strikingly illustrated at a laboratory meeting of the Royal Society of Tropical Medicine, held in London on Nov. 19th. The work is that of Dr. F. W. O'Connor, of the Presbyterian Hospital, Columbia University, New York, who, ten years ago, was in charge of an expedition sent by the London School of Tropical Medicine to the Western Pacific essentially to study filariasis. His method has involved the cutting of serial sections by the ten thousand, with the immediate staining and examination of every tenth or twentieth, intermediate ones being preserved for later examination if needful. The demonstration itself (by Lieut.-Colonel Clayton Lane) fell into three series of slides and microphotographs.

The first series dealt with adult filariæ and their destruction. In sections of healthy female worms the striking feature was the cramming of the terminal part of the uterus with sheaves of straightly extended microfilariæ, while in more posterior uterine loops the embryos were still coiled up in their egg-membranes. No such wholesale and massive straightening of microfilariæ was noted in P. H. Manson-Bahr's well-known year's work on the non-periodic filaria of Fiji; but it is a condition so conspicuous in these sections, that had it been present there it could hardly have been missed by any observer, and certainly would not have been by one of his care and capacity. The periodic presence or the permanent absence of this massing of straightened embryos seems then to constitute a difference between the periodic and non-periodic form of *Filaria bancrofti* and as such to fall in with, or to demand, an explanation of filarial periodicity in terms of retention of embryos in the uterus until the hour for cyclical parturition arrives. In this connexion a demonstration by Dr. Manson-Bahr, at this same meeting, of fluid exuding from excised elephantoid tissue was of interest. It came from a locality where filariasis is periodic and contained both coiled up and straightened embryos; but in view of O'Connor's display the presence of rolled-up embryos here seems best explained by the suggestion that the surgeon's knife acted unknowingly as a headman's axe. O'Connor next showed that the death of worms was brought about either by calcification or by pressure, the two processes being actually displayed on the same slide. Death by pressure is perhaps of two kinds: clotting of lymph, and encroachment by inflammatory tissue protruding from the wall of the lymph vessel. Both appearances were substantiated by specimens, and the extent to which giant cells may be present in the organising tissue resolves the difficulties of 20 years earlier. The presence of a living filaria grooving the surface of such a protrusion does not, it has been pointed out, necessarily imply impending compression, since N. Hamilton Fairley and F. P. Mackie [1] have shown that such an appearance may accompany recanalisation after venous thrombosis in schistosome infection, so that it may be by a provision of this sort that the bulk of an elephantiasis is kept in check. At all events, O'Connor's specimens leave no doubt that, by such strangulation, death and absorption of worms occurs, and that the strangulating tissue may itself become necrosed in the process.

The second series in the demonstration dealt with the death in a small group of femoral glands of microfilariæ which must have come from adults in the lower limbs. Healthy microfilariæ were shown in the afferent lymphatics about to enter a gland. Within the gland they were found calcified and fractured, the line of fracture having sometimes an almost callus-like enlargement, and at the same time they were apt to be surrounded by a necrotic patch which presumably they had themselves produced. No microfilariæ have been found in the efferent lymphatics. There was then in these lymph nodes evidence not only of destruction of many, perhaps of all, microfilariæ, but of damage to the glands in effecting this; and it seems difficult to draw any other conclusion than that such damage continuing day by day and year by year must play no inconsiderable part in the production of elephantiasis. The third series, as did the second, dealt with the death of microfilariæ, but in this case of those coming from worms in the testicular region. From a female worm lying in the tunica albuginea microfilariæ are carried in its dilated lymphatics towards the point of reflection of the tunica vaginalis. In the albugineal lymphatics they were shown both in a healthy state and calcified. In the latter case they were shown either simply enclosed in the organising exudation which encroached on these vessels, or within giant cells in that exudation. Moreover, in sections there was displayed at the angle of reflection of the tunica vaginalis a readily visible polyp of granulation tissue, a veritable microfilaria cemetery, displaying masses of calcified and fractured microfilariæ surrounded by cells of exudation. The evidence of their massive destruction was striking and indisputable. As for the time occupied in effecting it, in some calcifying microfilariæ the process was complete at one end, while at the other nuclei were sharp and the structure seemed unimpaired, an appearance which is compatible with, if indeed it does not imply, a very rapid process.

Finally O'Connor expressed his view that since as many as 50 parent worms had been found in the search of limited areas in persons who had merely enlarged groin glands in one case and small hydroceles in two more, the finding of many more worms in any one individual was likely to be a matter of time only, while in any case Manson's belief in hyperfilariation

[1] THE LANCET, 1931, i., 43.

expressed to O'Connor verbally and in writing was completely confirmed. It is understood that Dr. O'Connor has been invited to read a paper on filariasis before this Society next May.

## THE TIME OF CONCEPTION.

IN a paper[1] entitled The "Safe Period": an Established Certainty, Dr. R. de Guchteneere, of Brussels, begins by going over ground covered in our annotation of Sept. 12th (p. 599). Observations by several gynæcologists, he says, show a striking degree of unanimity in fixing the fourteenth to the nineteenth day after the beginning of menstruation as the usual time of ovulation. Once the ovum is freed it has small chance of survival, and there is therefore little likelihood of conception at the end of the intermenstrual period. On this basis, and following the observations of Siegel, he has advised his patients to limit intercourse to the six or seven days before menstruation if there is some medical reason for avoiding impregnation. But in the last year or two he has changed his practice in conformity with the views of K. Ogino, a Japanese gynæcologist, who maintains that the peak of ovulation determines the following menstrual period, and has no connexion with the preceding one. The truth of this contention has obvious practical importance to women whose usual intermenstruum is considerably longer than the normal. According to de Guchteneere, Ogino believes[2] that ovulation always takes place between the twelfth and sixteenth days preceding the next period; later ovulations, he says, are pathological and cannot lead to a pregnancy, since the fertilised ovum arrives in a uterus no longer in condition for implantation. Since there are good grounds for thinking that the non-fertilised ovum has a short life, Ogino concludes that during the 11 days preceding menstruation intercourse will not lead to conception. This statement should be fairly easily disproved if it is untrue. So far, however, de Guchteneere appears to be satisfied with the results of recommending the last 11 days as a "safe period."

## MOVEMENT OF THE ALÆ NASI.

No account of the clinical picture of pneumonia in childhood is complete without mention of the characteristic movement of the alæ nasi, and an interesting analysis of this sign has now been made by H. Seckel[3] of Hamburg. Using a polygraph to register the movements of the chest and of the nostrils so that their exact time-relationship could be studied, he is able to confirm the views of previous observers that there are at least two main types of respiratory movement of the nostrils. These are first the type seen in pneumonia, where there is a pre-inspiratory dilatation of the alæ nasi, and secondly that seen in other conditions such as asthma and sometimes in fever, where the nostrils dilate during expiration. But Seckel carries his analysis much further than this. First he divides the movements of the alæ nasi into respiratory and non-respiratory, the latter including muscular contractions due to emotion. The respiratory movements he then subdivides into arhythmical (seen especially in nasal conditions where there is much obstruction) and rhythmical, which are further classified as follows:

(*a*) *Pre-inspiratory* or active type. (1) Quiet form, as seen in pulmonary disorders, in the widest sense, such as acute lung diseases and paralysis of the muscles of respiration. (2) Agitated form, as seen in certain cases of obstruction of the respiratory passages.

(*b*) *Expiratory* or passive type. (1) Agitated form, as seen in crying, coughing, or laughing. (2) Quiet form, as seen in fever or loss of consciousness.

Certain other points in Seckel's paper call for comment. For example, the rapid breathing of fever caused by conditions other than diseases of the air passages or lungs is usually unaccompanied by movement of the alæ nasi—a point which may be useful in differential diagnosis. On the other hand its presence in pneumonia may be noted before there is any clinical evidence of localised disease in the lungs, and it becomes a valuable early sign. It is obvious from observation of a large series of cases that there is an individual predisposition to movement of the alæ nasi, the neuropathic child being liable to present this sign on the slightest upset in the respiratory system. Age also plays a part, for the phenomenon is especially present in infants and Finkelstein speaks of it as "obligatory" in the pneumonia of infants. These facts lead Seckel to consider the causation of the movements and he concludes that the pre-inspiratory type and the expiratory type have different origins. The latter he regards as a true reflex movement, brought about in order to aid respiratory efforts. For the pre-inspiratory type he deduces a more complex mechanism, based on the theory that the essential feature is not an anatomical narrowness of the nostrils but a disorder of the nervous coördination of respiration. He connects it with the physiological movement of the nostrils seen in certain amphibians and thinks that its predominance in infancy is atavistic.

## COCCIDIOIDAL GRANULOMA.

THE first recognised case of this disease in California was shown to the San Francisco Medico-Chirurgical Society on March 5th, 1894, and a second case appeared about the same time. Both patients were Portuguese natives of the Azores; both had lived in the San Joaquin valley in California; and both died of the disease. A third case was not discovered until the beginning of the present century. The disease was made reportable in California in 1928 and at present nearly 300 cases have been recorded. An official bulletin[1] just issued describes the disease and gives a detailed account of its occurrence in the State with a bibliography of 172 references to medical literature. This infectious granuloma is caused by an organism which when taken directly from the lesions resembles the coccidia responsible for a specific disease of rabbits and of domestic fowl. It was called coccidioides by Stiles who thought it was a protozoon. D. W. Montgomery grew a mould from material supplied from the first case, but thinking his cultures contaminated threw them away. Dr. Ophüls, also of San Francisco, showed that the organism actually is a mould, from material derived from the third case in 1904. He called it *Oidium coccidioides*. As it is not yet settled whether this is the correct class the authors of the bulletin prefer to use the non-committal term of fungus coccidioides. Primary infection is experimentally possible and almost certainly occurs naturally by inoculation through abrasions of the skin. The most frequent portal of entry, however, is probably by inhalation when an infection results that resembles so closely broncho-pneumonia or acute tuberculosis, both in

[1] Catholic Med. Guardian, October, 1931, p. 164.
[2] Zentralbl. f. Gyn., 1930, liv., 464.
[3] Jahrb. f. Kinderhk., 1931, cxxxiii, 163.

[1] Special bulletin No. 57. California State Department of Health, San Francisco, 1931.

physical signs and on the X ray screen, that only the discovery of the specific organism can make the diagnosis plain. It is believed that many cases are missed and that the present fatality-rate of 65 per cent. is consequently a good deal higher than the true rate. Colour has been lent to this view by a survey of the infection in cattle and sheep. No less than 18·4 per cent. of these animals were found to be infected. Treatment is still in the experimental stage. Success has been reported with intramuscular injections of colloidal copper and with intravenous injections of antimony potassium tartrate. X rays have been found effective in superficial lesions. Spontaneous cure seems to occur at times; it is too soon to say how often. Cases have now been reported from 11 States besides California. Outside of the United States two cases have been reported from Naples and 14 from South America. The question naturally arises as to whether the disease is limited geographically as closely as at first seemed likely. Discovery of the mould in a natural non-pathogenic environment would be an advance. Further surveys of sheep and cattle may bring to light unsuspected reservoirs of infection.

## SOCIAL ASPECTS OF JUVENILE DELINQUENCY.

To psychologists nowadays the principles of "Erewhon" are a truism—at any rate when applied to juvenile and adolescent crime. They have yet to convince their brethren of the law, but it seems that they are likely to have more success in the attempt which they are making than lawyers would perhaps receive were they to insist on transferring our patients from our ministrations to those of prison warders. At any rate the Medico-Legal Society listened with attention and interest when Dr. Emanuel Miller addressed them on Nov. 26th, arguing that crime was a kind of extra-version of neurosis. He illuminated the moral issues involved by emphasising the effort of primitive peoples to instil into their young all the essential features of tribal behaviour, so that they might become a vehicle for the preservation of the community. At the moment when youth is most likely to rebel and seek individual paths it is submitted to a process of moulding—the initiation ceremony—designed to annihilate its will with savage vindictiveness. Dr. Miller traced the same idea in the Roman "patria potestas" and the legal enactments that have grown out of it. The patria potestas, he said, remains a psychological reality, and no dual problem of a psychological and sociological nature can be understood unless this fact is realised. Identification with the father allows the young self to absorb the qualities of excellence and power and establish the ideas of an adult life. It renders possible a will to conformity because the internal moral notions answer to the external social world of family demands and later of social obligation. Very early in childhood the fictions of the social order thus become the private fictions of the self, but if the process goes wrong—perhaps through an unsatisfactory parent—there is friction between the social self and the private self. The result, said Dr. Miller, is neurosis, a kind of private solution in which the suffering returns to the self in the form of neurotic or psychotic disabilities. If, however, the ego ideal is not well organised in its relationship to the self, the conflict may be projected upon the outer world and the social organisation come to be regarded as the repressing force which must be overcome. In this way the rebel and the delinquent are made. Dr. Miller did not exclude environmental factors altogether; he admitted that the direction of neurotic symptoms might very well be determined by playmates and older companions. The factor of mental retardation also plays its part by accounting for inferior emotional integration. He declared that a quest for a motive in juvenile crime is futile; the child quite honestly does not know why he does this or that. Only a close history of personality development and environmental influences could reveal to either subject or observer the dominant factors of the situation. An attitude of legalism, he declared, merely introduces hostility and destroys human contact The investigator must have not only sympathy with the case, detachment from its implications, and an understanding of the factors, but also a knowledge of himself, so that he may avoid the common error of identification and the belief that he is understanding the child when actually he is only understanding himself.

## RICKETS AND DENTAL CARIES.

ELSEWHERE in our present issue Dr. Helen Mackay describes an attempt to test Mrs. Mellanby's theory that tooth structure and liability to dental caries are closely related. The plan was to examine for caries the teeth of a series of children of school age (6–10 years) who were known to have had rickets, and to compare them with the teeth of children who—as far as could be ascertained—had not had rickets. For this purpose groups of 46 rachitic and 40 non-rachitic children were assembled, the rachitic group consisting almost entirely of children who had been seen and diagnosed by Dr. Mackay herself at the time when they were suffering from rickets. Examination of the teeth showed that while hypoplasia was almost confined to the rachitic group, in which it was comparatively common, dental caries was equally severe in the two groups; the first observation therefore falls perfectly into line with Mrs. Mellanby's view, the second at first sight does not. There are, however, certain points which must be considered, and Dr. Mackay draws only one very limited conclusion—namely, that past rickets, in her series of cases, was not followed by an increased incidence of dental caries. Mrs. Mellanby has pointed out that, though of extreme importance, the bad early history of a tooth is not the only significant factor in its subsequent welfare. Thus if an ill-formed tooth has later a good history of vitamin D supply, it may do well, while a tooth with a good early history and a bad later one may fare ill. In the space of time, about four to eight years, between their having rickets and having their teeth examined, the rickety children may have had no worse dietary history than those who did not have rickets, and for a certain period they must have had a much better one. For if their rickets was diagnosed, presumably it was also treated with some intensive form of antirachitic treatment, possibly over a long period, and in so far as that was so, the rachitic children would certainly have scored dietetically over those who did not have rickets. It is not therefore possible to say from this series of cases that when all other conditions are equal, early rickets does not predispose to dental caries; Dr. Mackay is careful not to draw any erroneous conclusion, and the reader should be equally careful not to make broad assumptions. The latest report of Mrs. Mellanby's own work[1] is one of a large-

[1] Med. Research Council, Spec. Rep. Ser. No. 159, 1931. Report by the Committee on Dental Disease.

scale trial of vitamin D therapy on children in institutions. The trial has been going on for two years, and is not yet quite complete, but the available results show quite clearly that the spread of dental caries was but little checked by vitamin D therapy in the case of erupted (deciduous) teeth but was materially checked in the case of non-erupted (permanent) teeth. It must be admitted, however, that though checked the spread of caries was not completely arrested, and one is left wondering whether there is not also a deficiency of calcium in the diet, which is not completely rectified, even when vitamin D is intensively supplied.

### THE HOSPITAL SAVING ASSOCIATION.

In 1925 the late Lord Hambleden prophesied that the Hospital Saving Association, which had been established three years previously, would "in time" reach a membership of a million, and last year the Prince of Wales, the patron, hazarded the guess that this round number would be reached in 1931. These prophecies would no doubt have been completely fulfilled but for the economic situation. At the annual meeting of group representatives last week it was stated that at the end of July there were 930,000 contributors, a net increase during the year of 120,000. Assuming the continuance of the same rate of growth, the hoped-for million should be exceeded substantially by next summer, and if 10,000 new members a month can be enrolled in an exceptionally unfavourable year the prospects for the future are encouraging. The augmentation of numbers sent up the contributory income by £78,000 to £516,000, out of which a total of £388,580 was paid for hospital services. Few organisations for the encouragement of self-help have made such rapid progress, and in view of what has already been accomplished there is no need to suppose that the limit has nearly been reached. Better times would certainly bring back many members who have lapsed through sheer inability to keep up their contributions. The Association provides the hospitals with a big income from sources which would otherwise be largely untapped, and its progress is a sign that the voluntary hospitals are becoming increasingly dependent on the pence of the millions.

### AVERTIN AND GAS-AND-OXYGEN.

Among recent papers on anæsthetics, one by Prof. E. Desmarest,[1] of Paris, is noteworthy, not because it introduces any original method but because of its logical and well-supported testimony to the virtues of one which is already employed by several anæsthetists in this country. The method in question consists in the association of avertin with nitrous oxide and oxygen. Desmarest has been an advocate of nitrous oxide and oxygen for the last dozen years or so, and he finds his appreciation of this anæsthetic much enhanced by giving avertin first. The latter he uses purely as a basal narcotic, and with no idea of getting full anæsthesia from it. The doses he employs are never less than 5 g., nor more than 10 g., and are usually less than 0·01 g. per kg. of body-weight. He holds that the tendency to respiratory feebleness induced by avertin is directly counteracted by the action of nitrous oxide and oxygen, which have an equally corrective effect on a dropping blood pressure. He is under no delusion about the impossibility of always producing full relaxation by the method which he recommends, but asserts that the little extra trouble and patience required of the surgeon in the presence of some abdominal rigidity is more than repaid by the excellent condition of the patient, and the freedom from respiratory troubles seen after operation when no anæsthetic other than avertin and gas-and-oxygen has been used. F. B. Gurd and Wesley Bourne maintain that the respiratory depression sometimes seen after injection of avertin is avoided if the injection is made slowly enough. At least ten minutes, they say, should be spent in instilling the required dose.

[1] Bruxelles-Méd., Nov. 1st, p. 1.

## THE SERVICES

### ROYAL NAVAL MEDICAL SERVICE.

H. Hannesson to be Surg. Lt.

Surg. Lt.-Comdr. E. R. Sorley to *President*.

Surg. Lts. W. C. G. Ford (D.) to *Victory*, for R.N. Hospital, Portland; H. de B. Kempthorne to *Keppel*; and S. Jenkinson to *Penzance*.

#### ROYAL NAVAL VOLUNTEER RESERVE.

Lt. (Emergy.) G. T. C. Hutchison to be Lt.

Proby. Surg. Sub-Lt. G. H. C. R. Critien to be Surg. Sub-Lt.

### ROYAL ARMY MEDICAL CORPS.

C. J. Dobbin and R. Willan are granted temp. commns. in the rank of Lt.

#### TERRITORIAL ARMY.

Lt. G. C. Vaughan resigns his commn.

#### TERRITORIAL ARMY RESERVE OF OFFICERS.

Maj. G. V. Davies, from Active List, to be Maj.

### INDIAN MEDICAL SERVICE.

The undermentioned Cols. are granted seniority of rank: H. M. Mackenzie, S. R. Godkin, C. W. F. Melville, H. R. Nutt, J. Husband, G. C. L. Kerans, L. P. Brassey, P. L. O'Neill, W. R. J. Scroggie, E. A. Walker, F. E. Wilson, and J. P. Cameron.

Lt. (on prob.) M. Jafar to be Capt. (prov.) (on prob.).

Lt.-Col. A. S. M. Peebles retires.

## INFECTIOUS DISEASE

### IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 21ST, 1931.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 55 (last week 68); scarlet fever, 1830; diphtheria, 992; enteric fever, 31; pneumonia, 1125; puerperal fever, 46; puerperal pyrexia, 100; cerebro-spinal fever, 28; acute poliomyelitis, 9; acute polio-encephalitis, 2; encephalitis lethargica, 11; dysentery, 21; ophthalmia neonatorum, 100. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 24th–25th was as follows: Small-pox, 129 under treatment, 3 under observation (last week 133 and 1 respectively); scarlet fever, 1687; diphtheria, 1524; enteric fever, 10; measles, 297; whooping-cough, 425; puerperal fever, 16 (plus 10 babies); encephalitis lethargica, 221; poliomyelitis, 5; "other diseases," 196. At St. Margaret's Hospital there were 12 babies (plus 7 mothers) with ophthalmia neonatorum.

*Deaths.*—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 15 (2) from measles, 4 (1) from scarlet fever, 32 (2) from whooping-cough, 24 (3) from diphtheria, 60 (16) from diarrhœa and enteritis under two years, and 82 (12) from influenza. The figures in parentheses are those for London itself.

Sunderland reported the only fatal case of enteric fever. Four deaths from measles were reported from Manchester, 2 each from Stoke-on-Trent, Oldham, and Carlisle. Liverpool reported 15 deaths from whooping-cough, Birmingham and Newcastle each 3, Manchester 2. Diphtheria claimed 6 victims at Manchester, 3 each at Liverpool and Dewsbury. Diarrhœa was credited with 5 deaths at Birmingham, 4 each at Nottingham, Manchester, and Hull, 3 each at West Ham and Middlesbrough. Fatal cases of influenza are reported from 42 great towns, the highest numbers being in Liverpool, 7; Manchester, Rochdale, each 5.

The number of stillbirths notified during the week was 309 (corresponding to a rate of 50 per 1000 births), including 46 in London.

# SPECIAL ARTICLES

## RUSSIA IN RECONSTRUCTION.

BY L. HADEN GUEST, *M.C.*, M.R.C.S. ENG.

### III.*—POPULATION AND BIRTH CONTROL.

THE birth-rate in Russia is still very high; in 1926 it was about 47 per 1000, but has declined since that date. The death-rate, 30 per 1000, has also declined, and the propaganda of hygienic ways of living and the establishment of a service of rural medicine will undoubtedly reduce it still more. Infant mortality was formerly very high, but it has been greatly reduced in the main urban centres, especially in Moscow and Leningrad.

The 1897 census of Russia (the first taken) showed a population of over 129 millions, which included Finland and the Baltic provinces, since separated from Russia at the 1917 Revolution. In 1926 the population of the area remaining inside the Soviet boundary was estimated at nearly 147 millions, and it is now calculated at about 160 millions. With improving sanitation, limitation of infectious epidemics, and reduction of infantile mortality, it is clear that a continuation of the growth of Russia's population at the same rate would very soon give her an overwhelming numerical superiority over any other European country. But the same factors which check the growth of population in other countries serve the same end in Russia. With increasing industrialisation and improvement in the standard of life as compared with pre-war conditions, the population is already showing a tendency to decline. But the factor of artificial birth control is likely to have a greater effect in Russia than elsewhere, as the propaganda of birth control is actively pursued rather than merely permitted or even tacitly encouraged.

In all hospitals dealing with the treatment of women's diseases or maternity, instruction is given in methods of birth control, and the methods adopted are substantially the same as those in use in Western Europe. The contraceptive appliance used most widely is the Graciella pessary, invented by Dr. Petersen, of Munich. It is not only in the towns of Moscow and Leningrad that this information is available, but in all the towns and at all the centres of rural medicine established during recent years in the agricultural districts. Apart from actual cities the medical services are particularly well organised in the mining areas. In the Donetz basin, for example, birth control information is freely available.

#### LEGALISED ABORTION

The most interesting feature of birth control methods in Russia is the legalisation of abortion when performed by duly qualified medical men or women. This legalisation has been discussed elsewhere, in Saxony for example, but Russia is the only country to have introduced the practice as a normal method of restricting births. In Russia at the present time any woman who is pregnant and desires to have the pregnancy terminated may have an abortion operation carried out by a doctor.

My information on methods was gained at a large women's hospital, where general gynæcological and maternity cases were dealt with, and where a proportion of beds were reserved for abortion cases. And, so far as I could judge, the question of an operation for abortion was treated precisely as the question of any other operation might be. No special considerations and no special formalities entered into the decision one way or the other. I did not indeed hear of any refusal to operate, but only of inability because of lack of accommodation.

At the hospital I visited about ten abortion operations were performed daily, the operation taking five to ten minutes. I witnessed one operation on a primipara who was under an anæsthetic; the operation, done by a woman doctor, occupied just over five minutes. The method was simple. The drawing down of the cervix to the vaginal entrance, dilatation by Hegars dilators, and scraping with a series of curettes. In cases of multiparæ an anæsthetic is not used as a rule, unless the patient is very nervous. Patients are kept three days in hospital. Cases of abortion are operated upon, on request, up to three months.

I was informed that the results were almost uniformly satisfactory. In a series of 40,000 cases, spread over ten years, there had been only two deaths, and this included 20,000 cases operated on in the homes and brought to hospital because of complications. There was a post-operative rise of temperature in 0·1 per cent. of cases, and there were 10 to 12 cases of perforation a year. I inquired specially as to whether there were any nervous or psychological after-effects, and I was assured, by several members of the staff of the hospital, that there were none observable.

The operation is not performed free of cost, but a charge is made of 25 roubles to include stay in hospital, operation, and all expenses. This sum represents about a week's wages of an ordinary worker, rather more in the case of some unskilled women workers, and much less in the case of the highly skilled. The reason why operations are performed in the home, where they are usually done by a "friend" or by a midwife and are illegal, is partly for economy, the home fee charged being about 5 roubles; and partly because of the difficulty of securing admission to a hospital. I heard of a complaint by a woman who said: "Oh, yes, abortions are legal, only the child is about 12 years old before you can get admission to a clinic." The operations for abortion take place not only in Moscow and Leningrad and the larger cities, but in the mining areas—many operations are performed in the Donetz coalfield—and in the centres of rural medicine established for groups of villages in the agricultural areas.

It may be accepted, therefore, that the practice of legal abortion is widespread and likely to increase in the future. And it will certainly have a big effect on the rate of population increase. One or two doctors with whom I discussed the question said that the birth-rate was already less than before the war, and that it must be expected to show signs shortly of a definite decrease. In the ordinary way this could not be expected to take place among the 80 per cent. of the Russian population who are peasants. But development in Russia is not proceeding in the ordinary way. Over one-half of the peasants of Russia have already thrown in their lot with collectivisation and joined the Collective Farms. And by the end of 1933 the Soviet

* Parts I. and II. have appeared in preceding issues.

Government anticipates the whole of the peasants will be collectivised. This means the substitution of large scale, machine worked, and scientific agriculture on giant farms, as against the Russian peasant cultivation on farms of an average of 9 acres.

• With this rapid change, which is accepted by the peasants, now that agricultural machinery and tractors can be supplied, because it improves their position and standard of life, go other changes. There are changes in housing, in the provision of reading rooms and clubs for adults, creches and play-places for children, the new service of rural medicine, already referred to, the extension of elementary and adult education, and, in fact, a revolutionary reorientation of life. With these changes also there goes a change in the position of women, who have the opportunity for economic equality and who more and more accept it. Under these conditions it is the fact that a larger and larger proportion of women every year avail themselves of birth control in practice by the use of contraceptive appliances, and of abortion in case of need.

### THE SITUATION IN MOSCOW.

Figures for the country as a whole I did not obtain, but I was able to secure figures of birth-rate and abortion-rate in Moscow for the years of 1909 to 1927, which are quoted in the Problem of Abortion, by A. Guince, published in Moscow. According to this authority the figures are as follows :—

I have constructed a Chart from the figures in Columns 6 and 7, which shows at a glance the total pregnancies and their results over the two series of years.

*Births and Abortions at Moscow, 1909–14 and 1921–27.*

| Year. | Births. | Abortions. | Percentage of abortions to natural births. | Population. | Per 1000 of population. | | Percentage of abortions at hospital. |
|---|---|---|---|---|---|---|---|
| | | | | | Births. | Abortions. | |
| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* |
| 1909 | 52,180 | 1,972 | 3·8 | 1,471,785 | 35·4 | 1·3 | Nil. |
| 1910 | 53,715 | 2,459 | 4·6 | 1,526,900 | 35·2 | 1·6 | |
| 1911 | 54,036 | 3,486 | 6·4 | 1,580,900 | 34·2 | 2·2 | |
| 1912 | 54,806 | 3,743 | 6·8 | 1,636,850 | 33·5 | 2·3 | |
| 1913 | 54,548 | 4,926 | 9·3 | 1,694,825 | 32·2 | 2·9 | |
| 1914 | 54,405 | 5,537 | 10·2 | 1,754,900 | 31·0 | 3·2 | |
| 1921 | 36,000 | 6,723 | 18·7 | 1,176,600 | 30·6 | 5·7 | ? |
| 1922 | 35,328 | 7,646 (4,367) | 21·6 | 1,137,700 | 25·6 | 5·5 | 43·0 |
| 1923 | 48,780 | 8,985 (3,809) | 19·2 | 1,620,600 | 30·1 | 5·5 | 57·6 |
| 1924 | 51,914 | 10,152 (3,809) | 19·5 | 1,772,000 | 29·3 | 5·7 | 62·4 |
| 1925 | 57,537 | 18,071 (3,810) | 31·4 | 1,855,000 | 31·0 | 9·7 | 80·0 |
| 1926 | 58,384 | 31,986 (3,893) | 54·7 | 2,019,453 | 28·9 | 15·4 | 87·8 |
| 1927 | 53,369 | 40,001 (5,851) | 75·0 | 2,083,000 | 25·6 | 19·2 | 85·4 |

Figures in parentheses in Column 3 indicate illegal abortions outside hospitals of which authorities got information.

In interpreting the figures it is necessary to note that Moscow is now very much over-crowded. Apartment space is measured not in rooms but in square yards of floor space, for not only has an increased population to be housed but accommodation has to be found for all the governmental, trade union, co-operative, and political offices. It is also necessary to remember that Moscow is one of the chief centres of Communist influence, and a great medical centre where treatment can be more easily obtained than elsewhere. The Moscow figures are inevitably exceptional, but that the increase of abortion between 1921 and 1927 is typical of a general Russian tendency there is little doubt.

It would therefore appear probable that the extension of birth control information all over the Soviet Union and the spread of the practice of abortion in hospital to the agricultural areas will have the result of decreasing the very high birth-rate, and may

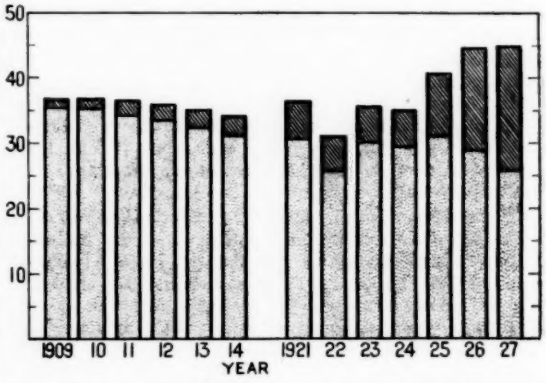


Chart showing proportion of natural births (stippled) and abortions (black) per 1000 of the population of Moscow in the years 1909–14 and 1921–27.

make the population stationary in a few years time. In any case it is important for Russia to understand from what section of the population her increase is now coming. From the population statistics available it would appear that the greatest increases of population are in the peasant areas, and the greatest decreases in the towns and among the industrial workers. But in present-day Russia the progress of industrialisation is so rapid, and the increase of the population of the towns so great, that the contrast between town and country populations is becoming less marked. Furthermore, the collectivisation of peasant holdings and the formation of giant collective farms, creates a kind of industrialisation of the countryside so that the factors affecting the future growth of population in Russia are largely incalculable.

What is certain is that birth control and abortion are spreading all over the Soviet Union, and are bound to result in a decrease of the birth-rate. But it is equally certain that the improvement of hygienic conditions and standard of life of the people is also spreading all over Russia. The net result in the immediate future is therefore likely to be a considerable increase of total population. But beyond that it is not possible to go without further detailed information.

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**EXTENSION OF HUDDERSFIELD INFIRMARY.**—The centenary of this hospital is to be marked by the erection of a new block and, should means permit, by the reconstruction and extension of the existing main building. The scheme, in its entirety, will cost £75,000. The new block will include a fully equipped accident ward, a new out-patients' department, with a dispensary, a waiting hall to hold 300 persons, and a café for those who have to wait for special treatment. There will also be a self-contained unit for ear, nose, and throat cases, two consulting rooms, a dental department, and a unit of 12 cots for tonsils and adenoids operations. New pathological and radiological departments and a massage or orthopædic clinic are also proposed. The proposal for the remodelling of the existing premises includes the conversion of the present out-patient and casualty department into a general ward, and the conversion of a large house into wards for paying patients.

# GENERAL MEDICAL COUNCIL.

*(Continued from p. 1207.)*

AFTER the first session of the Council the chair was taken by Sir NORMAN WALKER, the new President. Sir Robert Bolam suggested that there should be incorporated in the official minutes some expression of the gratitude of the Council to the retiring President, Sir Donald MacAlister, and his proposal was received with acclamation. After some discussion of the constitution of the Committee of Business, of which Prof. J. B. Leathes, F.R.S., was elected chairman, the Council turned to the consideration of

## Penal Cases.

The first of these were cases adjourned from November, 1930, in which judgment was postponed. After hearing evidence the Council decided that the names of Francis Patrick Kennedy, Ralph Johnston Tait, John Logan Lamond, John Griffith Barrie, and John McGhee should not be erased from the Register. In the case of Mr. Kennedy judgment was postponed for a further twelve months.

### A DIVORCE CASE.

*The Case of Antony Alexander Martin*, registered as of 37, Kenya-avenue, Hove, Sussex, M.R.C.S. Eng., 1893, L.R.C.P. Lond., 1893, M.B., 1895, M.D., 1898, U. Lond., who had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you abused your position by committing adultery with Grace Ashdown Blows, a married woman, whom and whose husband you had attended professionally, of which adultery you were found guilty by the decree of the Probate, Divorce and Admiralty Division (Divorce) of the High Court of Justice, dated May 7th, 1931, in the case of Blows v. Blows and Martin, in which you were the co-respondent. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

There was no complainant in this case. Dr. Martin attended in answer to his notice and was accompanied by Mr. J. R. Cort Bathurst, Solicitor.

Mr. Harper, solicitor to the Council, laid the case before the Council. Mr. and Mrs. Blows had been married in 1916 and their first child had been born in 1917. Dr. Martin, as Ministry of Pensions doctor, had attended Mr. Blows between 1920 and 1922 at the Princess Alice Hospital in Eastbourne, and had also attended Mrs. Blows's second confinement in 1922. Mr. Blows had noticed a change in his wife in 1925, and had observed that Dr. Martin was always taking her out in his car. Mrs. Blows went off with Dr. Martin in 1928, and Dr. Martin had written to Mr. Blows in the third person announcing the fact, and inquiring whether legal steps would be taken. Mr. Harper put in a copy of the divorce decree and the shorthand note of the proceedings in the Divorce Court.

Mr. Bathurst then applied for a hearing in camera. He indicated that there was no dispute as to facts, but that his case would be a plea for mitigation of sentence on the ground that Mrs. Blows had had an exceedingly unhappy home. His request was not granted.

Mr. Cecil Blows, examined by Mr. Harper, testified to the facts as set out. He had been respondent's panel patient from 1919 to 1925, and respondent had attended the household. His wife had gone for a holiday with the children and had not returned; witness had not known where she was until he had received respondent's letter. The divorce proceedings had been undefended.

Cross-examined, he agreed that no damages had been awarded by the jury. He could not say the last date on which respondent had attended Mrs. Blows, but maintained that it was later than 1922. Social intercourse had been constant, and witness had not objected. He was not aware that his wife had complained throughout this period of his cruelty to her, or that she had contributed largely to the family exchequer. He had supported her until she left him. Since then he had made no contribution at all to the support of the children and had seen them once.

In reply to the Legal Assessor, he said he had been on respondent's panel up to the time he left, and his wife had had no other medical attendant. He had received a bill from Dr. Martin just after their departure in 1928 for attendance on the wife and children. He had been given custody of the children, but they had remained where they were. There had been no counter charges of cruelty in the Divorce Court.

Mr. Bathurst explained that custody of the children had been given to Mrs. Blows's father.

Dr. Martin, examined by Mr. Bathurst, agreed that he had become doctor to the Blows family in 1922, but said he had ceased attendance early in 1928. The account had been sent out by his partner unbeknown to him. In reply to the Legal Assessor, he agreed that the account was presumably accurate for services rendered in 1928. Further examined, he said that his relations with Mrs. Blows from 1926 to 1928 had been ordinarily social, and the professional attendance had not been very frequent. Mr. Blows had known of the outings with his wife. In July, 1928, his wife and his partner had protested against his association with Mrs. Blows, and he had determined to leave Eastbourne. The charges of cruelty in the divorce case had been withdrawn to ensure that the mother should retain custody of the children, who had, in fact, remained with the mother and himself since 1928. He had spent about £600 on the boys, feeling it his duty to take on that responsibility.

Cross-examined by Mr. Harper, witness said that Mrs. Blows was a clergyman's daughter. He himself was a married man.

In reply to the Legal Assessor, he agreed that Mr. Blows had remained on his panel until he left in 1928, and he had remained Mrs. Blows's medical adviser up to the same time. Neither Mrs. Blows nor the children had had any other medical attendant.

Mr. Bathurst addressed the Council, arguing the antiquity of the phrase "infamous conduct in a professional respect" and maintaining that his client had done nothing disgraceful or dishonourable in this sense.

After Mr. Harper's reply, characterising the case as undefended from the Council's point of view, the Council deliberated in camera. The President announced that the Council had directed the Registrar to erase Dr. Martin's name from the Register.

### A QUESTION OF CANVASSING.

*The Case of James Lionel Bocarro*, registered as of 59, Creek-road, Deptford, S.E.8, L.A.H. Dubl., 1911, F.R.C.S. Irel., 1912, D.P.H. Camb., 1914, who had been summoned to appear before the Council on the following charge:—

1. "That, being a registered medical practitioner, you have canvassed with a view to obtaining patients, and in particular: (1) On or about June 10th, 1929, canvassed one Joseph Wade, whose wife and family were patients of Rustom Dossabhoy Kamdin, a registered medical practitioner, whose assistant or locum tenens you had previously been. (2) On or about the same day canvassed Mrs. Ellen Wade, the wife of the said Joseph Wade. (3) In or about the month of June, 1929, canvassed one Walter James Dupoy, a patient of the said Rustom Dossabhoy Kamdin. (4) In or about the month of June, 1929, canvassed one Walter George Burgess and his family, who were patients of the said Rustom Dossabhoy Kamdin. (5) On or about Dec. 11th, 1929, canvassed one William Alfred Fullman.

2. That being a registered medical practitioner you (1) On Dec. 9th, 1929, issued a first certificate of incapacity for work under the National Health Insurance Acts, Form Med. 40 (Revised), in respect of one W. J. Dupoy as follows—namely, 'I hereby certify that I have examined you on the undermentioned date and that in my opinion you were at the time of examination incapable of work by reason of bronchitis,' whereas you had not seen or examined the said Dupoy on Dec. 9th, 1929; (2) On Dec. 11th, 1929, issued a first certificate of incapacity for work under the National Health Insurance Acts, Form Med. 40 (Revised), in respect of one Mrs. Fullman as follows, namely: 'I hereby certify that I have examined you on the undermentioned date and that in my opinion you were at the time of examination incapable of work by reason of influenza,' whereas you had not seen or examined the said Mrs. Fullman on Dec. 11th, 1929, which certificates were false, misleading, or improper.

And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The complainant was Rustom Dossabhoy Kamdin, L.M.S., Bombay.

Mr. Bocarro attended in answer to his Notice and was accompanied by Mr. A. E. Appelbe, Solicitor. Mr. P. Quass, instructed by Messrs. Osborn and Osborn, appeared for complainant.

Mr. Quass said that in 1927 the complainant had opened a practice in Bermondsey and had taken Dr. Bocarro as assistant. In June, 1928, the relationship had terminated and thereafter complainant had suffered from canvassing by respondent.

Mr. W. A. Fullman, examined by Mr. Quass, described how he had visited respondent and been urged by him to join his panel, and how respondent had given him a certificate for witness's wife, whom he had never seen. In cross-examination he said he had never seen any other Indian doctor at 10, Bermondsey-square. He maintained that the doctor seen by him was respondent, and that he had seen him sign the certificate.

Mr. W. J. Dupoy, examined by Mr. Quass, said that in 1929 he had been on Dr. Kamdin's panel for some years and had been attended by respondent as complainant's assistant. In June, 1929, respondent had visited him and requested him to remain his patient. Respondent had taken the medical cards of witness and his family and asked him to sign a paper. He had not read the paper, but had thought both doctors were removing to 10, Bermondsey-square. He had had no idea that he was changing his doctor. Cross-examined, he said he had seen both doctors and had only seen respondent when the latter went to witness's house to see his children. He had been misled, and had not known that the association between the two doctors had been dissolved until complainant had called later and told him. Respondent had given a certificate for witness's son without ever seeing him.

In reply to the Legal Assessor, he said that he and his son had the same initials and had received certificates for the same complaint, but on different days.

Mrs. E. A. Dupoy, examined by Mr. Quass, testified that she had called on respondent for a bottle of medicine for her son who had a cold, and had received medicine and a certificate; respondent had not seen her son. She was certain that she had seen respondent sign the certificate, although it had "p.p." before his name. He had been the only doctor there; she had seen him two or three times and had seen no one else there. She did not know her son's insurance number.

Mr. Joseph Wade, examined by Mr. Quass, said he was the husband of Ella Wade, who had been Dr. Kamdin's patient in 1920. Respondent had called several times at the house and had asked them both more than once to come to his new place in Bermondsey-square. Cross-examined, he said he knew nothing of a dispute between the two doctors, and that he had seen respondent several times between 1927 and 1929.

Mr. W. G. Burgess testified that he had been Dr. Kamdin's patient up to June, 1929, about which time he had been visited by respondent, who had asked for his medical insurance card. He had signed a paper for respondent without reading it. Examined by the Legal Assessor, he said he had attended respondent after signing the paper, thinking he was Dr. Kamdin. He had seen both doctors together before, but had not known which was which. In reply to a question by Dr. Bone, witness said he had not signed the medical card or written anything on it. He had not wanted to change his doctor, and did not know how to proceed in order to make a change. In reply to Mr. K. Monsarrat, he said he did not know why he was asked for his medical card; he had thought, it was a simple change of address.

Dr. Kamdin testified to the facts as set out, and to a document written by respondent in 1928 undertaking not to distribute cards to or see his patients without his consent. Soon after this, respondent had ceased to be a whole-time assistant and had become part-time. Burgess, Wade, and Dupoy had ceased to be on his panel in June, 1929. Cross-examined by Mr. Appelbe, he agreed that on June 30th, 1928, he had sold his practice at Commercial-road to respondent, but this had been an ophthalmic and not a general practice. Witness had obtained an injunction in 1930 to prevent respondent from canvassing his patients. All these people might, it was true, have been in the habit of seeing respondent for many years as witness's assistant. The sale of the ophthalmic practice had never been completed; respondent had stopped purchase before paying the whole amount. He had quarrelled with the tenants of the premises.

Mr. Bocarro testified to his assistantship to complainant from 1927 to June 30th, 1928, and to his purchase of the ophthalmic practice at Commercial-road. A dispute had arisen as soon as the terms of purchase had been settled, with the result that an interim injunction had been obtained against him in 1930. He had broken that injunction and had gone to prison for six weeks. A permanent injunction had been granted at the end of 1930. The cases under discussion had occurred in the latter half of 1928. Cross-examined, he said that the injunction had followed the terms of the original agreement between himself and complainant. He had attended Mrs. Wade frequently and might have asked her to come to his new address. He strongly denied signing the certificates; it was not his form of signature and they bore the words "per pro." Someone must have been masquerading as himself at Bermondsey-square; there were two others there who resembled him. He denied distributing visiting-cards to complainant's patients.

In reply to the Legal Assessor, respondent said that Burgess was on Dr. Kamdin's panel before 1929, but did not admit asking him for his medical card. Mrs. Wade and the others had been patients of the joint practice, more his than Dr. Kamdin's. Mrs. Wade had not become his patient after June, 1929, as he had left Bermondsey. It was absolutely untrue that he had asked Burgess to sign a paper.

In reply to the President, he said he had joined Dr. Kamdin as assistant and had offered to buy the practice. The part-time assistantship had lasted about eleven months.

Mr. Appelbe pointed out that this part-time agreement had existed during the period in which the

alleged offences had taken place. During most of the time proceedings in the High Court had been pending. Respondent had not been well represented and was not very familiar with legal matters. He had foolishly gone against an interim injunction and had gone to prison in consequence. The health certificates had not been signed by him. It was difficult for him to remember individual certificates, as he had been seeing large numbers of patients. He hoped the Council would take a lenient view of the four cases of alleged canvassing, as he maintained these were his own patients.

Mr. Quass said there had been no dispute as to the main facts as deposed by the patients who had appeared as witnesses. As soon as the part-time assistantship had ceased, respondent had set up in practice in a district where he had no right to set up, and had canvassed people whom he had met as Dr. Kamdin's patients.

After deliberation in camera, the President announced that the Council had found charges 1 (1), (3), (4), and (5) and 2 (1) and (2) proved to their satisfaction and had directed the Registrar to erase Mr. Bocarro's name from the Register.

### MISLEADING CERTIFICATION

*The Case of Mark Joseph Bradlaw*, registered as of 153, Mellison-road, Tooting, S.W.17, M.B., B.Ch., 1924, U.Dubl., who had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you (1) On Dec. 16th, 1930, counselled or procured or permitted or enabled or connived at the completion and issue by one J. F. Pegum, a dental surgeon, of 153, Mellison-road, Tooting, of a certificate signed by you certifying that one H. P. Harriss should in your opinion consult a dental surgeon. The document in question was signed by you in blank, and when completed by the said J. F. Pegum by the insertion of the name of H. P. Harriss or some other patient of his and the date was intended by you to be used as a certificate and as you well knew to be sent or handed to an Approved Society to enable such patient to obtain dental benefit. The said certificate, when completed by the insertion of the name of H. P. Harriss and the said date, was untrue, misleading, or improper in that it implied or represented that you had examined the said H. P. Harriss on the said date and formed the opinion that he required the services of a dental surgeon, when in truth and in fact you had never seen or examined the said H. P. Harriss professionally for the purpose of forming such opinion on that or any other date. In the alternative you—(2) On Dec. 16th, 1930, signed a certificate stating that in your opinion one H. P. Harriss should consult a dental surgeon, implying and representing thereby that you had examined the said H. P. Harriss on that date and had formed the opinion that he required the services of a dental surgeon, when in truth and in fact you had never seen or examined the said H. P. Harriss professionally for the purpose of forming such opinion on that or any other date, which certificate was thereby untrue, misleading, or improper. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

Mr. Bradlaw appeared in answer to his Notice and was accompanied by Mr. Charles A. Davis, instructed by Messrs. Bulcraig and Davis, Solicitors. Mr. Scott Henderson, instructed by Messrs. Ponsford and Devenish, Solicitors, appeared for the Dental Benefit Council.

Mr. Henderson said that on Dec. 16th, 1930, Harriss had visited Mr. Pegum, a dentist in Tooting who worked on the same premises as, and shared a waiting room with Mr. Bradlaw. Mr. Pegum had opened a drawer in his consulting room, taken out a piece of paper, written something on it, and told Harriss to send it to his society when applying for benefit. This paper was the certificate complained of. Harriss had never seen respondent, nor had Mr. Pegum ever left the room. Harriss knew respondent by sight.

Mr. H. P. Harriss testified to the facts outlined by Counsel, and identified the certificate. He had seen respondent casually on that day or the next, but had not been examined. Cross-examined, he agreed that there was a communicating door between the two surgeries, but not that the dentist and the doctor had been speaking together as he entered. One of his children had received a certificate from respondent about the same time, and the signatures appeared to be the same. He had compared the signatures because he had been surprised to find a doctor's signature on a certificate given by a dentist. Re-examined, he produced the certificate given for his child by respondent, and identified the dental letter he had received from his Society and taken to Mr. Pegum. Again cross-examined, he said he had—by answering the questions asked him—informed the Society that he had not been seen by the doctor.

Mr. Bradlaw, examined by Mr. Davis, said that Mr. Pegum's hours of work coincided with his, and that he had seen Harriss come into the room, as Mr. Pegum had opened the communication door to speak to him at that moment. The dentist's room had a bureau with only one drawer, and this could only be opened by raising the flap. It was not true that he had given Mr. Pegum a number of certificates in blank; he had never issued a blank certificate in his life. Mr. Pegum had come through the communicating door, and respondent had swung round in his swing chair and had been able to see the patient through the door. He believed at that time that it was not necessary to examine the patient; he thought it sufficient to rely on a colleague's word. For this mistake he was extremely sorry. Mr. Pegum had filled in the name on respondent's desk before respondent had signed it. Harriss was mistaken in saying the dentist had never left the room.

Cross-examined, he said that while seated in his own chair he would hear any conversation between Mr. Pegum and Mr. Harriss. In reply to the Legal Assessor, he said he did not know that a certificate was not essential to benefit, or what influence a medical certificate had on the Dental Benefit Council. He expressed regret for having taken the dentist's word and not having made a personal examination. In reply to questions from members through the chair, he said Harriss was not a panel patient of his and he had received no fee.

Dr. Letheby Tidy pointed out that the certificate did not state that the doctor had examined the patient.

Mr. Hubert William Jones, surgery assistant, described the desk in the surgery and deposed that it was his duty to look through the drawers in both rooms; he had never seen any signed or unsigned slips. Cross-examined, he said he supplied Mr. Pegum's desk with stationery and blotting-paper and examined the appointment book before 9 A.M. each morning. He had worked on this job for six years.

Mr. Davis, addressing the Council, said that the form of the certificate did not imply personal examination. Only one certificate was complained of and he argued that the word of a qualified colleague whom the doctor had seen examining the patient was surely sufficient justification. Respondent would certainly not make this mistake again.

Mr. Henderson urged the importance of these certificates to the Dental Benefit Council.

After deliberation in camera, the President announced that the Council felt the respondent had been lax, owing to his lack of familiarity with the dental benefit system. On his assurance that he would not do it again, they had not seen fit to direct

the erasure of his name from the Register. They thanked the Dental Benefit Council for bringing the case before them.

ALLEGED ADVERTISING.

*The Case of Mrs. Nesta Helen Wells*, registered as of 153, High-street, C.-on-M., Manchester, M.B., Ch.B., 1916, V.U.Manc., who had been summoned to appear before the Council on the following charge :—

"That, being a registered medical practitioner, you knew and consented to the publication in the *Manchester City News* of June 6th, 1931, of an article in praise of yourself and your professional work, with a portrait of yourself, and thereby sought to obtain patients and to promote your own professional advantage. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

Mrs. Wells attended in answer to her Notice and was accompanied by Mr. T. Carthew, instructed by Messrs. Le Brasseur and Oakley on behalf of the London and Counties Medical Protection Society.

The complainant was Anthony John Capper Magian, M.B., Ch.B., 1900, Vict. Univ., who was not present. Mr. Harper therefore laid the case before the Council. The article complained of was, he said, the fifth of a series of articles on "Women Workers," and had described respondent's work as a police-surgeon in examining policewomen and cases of indecent assault. It referred to her private practice and her family.

Mrs. Wells, examined by Mr. Carthew, said that she had been appointed police-surgeon in 1927, and was the only woman in Europe to hold that office. She had received a letter from the newspaper asking permission to include an account of her work in their series, and requesting an interview. She had seen a proof before publication and had struck out her address. She had been very busy at the time, as her partner had been away. She was interested in women's work and her intention had been to let it be known that women could work as police-surgeons and at the same time do private work and have a home-life. Her motive had been altruistic, and she had had no intention of increasing her practice. She apologised for her inadvertent offence. In 1927, when she had been appointed, the *Manchester Guardian* had printed an article on the appointment, giving her name and address and reporting an interview in which she had expressed the desirability of having women police-surgeons to examine women and children. She had consulted the British Medical Association at this time and had been told that this article was not objectionable. She had assumed that eulogies in the article were only journalistic padding and not to be taken seriously.

Mr. Carthew read letters from a stipendiary magistrate and a British Medical Association official testifying to Mrs. Wells's character.

After deliberation in camera, the President announced that the Council had found the charges proved to their satisfaction, but in view of Mrs. Wells's apology they had not seen fit to direct the Registrar to erase her name from the Register.

POLICE-COURT CONVICTIONS.

*The Case of Alan Gray*, registered as of 65, Moston-lane, Blachley, Manchester, M.B., B.S., 1925, U.Durh., who had been summoned to appear before the Council on the following charge :—

"That you were convicted of the following misdemeanours, —viz., (1) On Sept. 13th, 1927, at the Blyth Police-court, of being drunk in charge of a motor-cycle, and were fined £1 and £1 11*s.* costs, and of driving the motor-cycle to the danger of the public, and were fined £1. (2) On June 15th, 1931, at the Middleton Borough Police-court, of attempting to drive a motor-car whilst under the influence of drink, and were bound over for twelve months in the sum of £25 to come up for judgment if called upon and ordered to pay £2 17*s.* costs."

Mr. Gray was accompanied by Mr. A. A. Pereira, instructed by Messrs. Le Brasseur and Oakley for the London and Counties Medical Protection Society. When Mr. Harper had laid the facts of the case before the Council and read the police-sergeant's account of the matter, Mr. Gray gave evidence. He admitted the convictions, expressed his great regret, and gave an assurance of total abstinence in the future. He pointed out that in both cases the offence had occurred after working hours.

Mr. Pereira put in a testimonial as to character, and said that the convictions suggested that the Bench had not taken a very serious view of the offences.

After deliberation, the President announced that judgment would be delayed until the May session, 1932.

*The Case of Thomas Robert Sandeman*, registered as of The Howff, Kincardine-on-Forth, Fife, M.B., Ch.B., 1910, U. Edin., F.R.C.S. Edin., 1914, who had been summoned to appear before the Council on the following charge :—

"That you were convicted of the following offences—viz., (1) On Dec. 27th, 1928, at the Dunfermline Burgh Police-court, of being drunk in charge of a motor-car, and were fined £2 or 20 days' imprisonment. (2) On August 14th, 1930, at the Perth Sheriff Court, of driving a motor-car negligently while under the influence of intoxicating liquor, and were fined £10 or 60 days' imprisonment. (3) On June 15th, 1931, at the Sheriff Court, Dunfermline, of driving a motor-car recklessly and at a speed dangerous to the public, and of driving the said motor-car while under the influence of drink, and were fined £5 and disqualified from holding or obtaining a licence for two years."

Mr. Sandeman was present. Mr. Harper described the occurrences and pointed out that respondent had pleaded guilty. Serious accidents had only been averted by the skill and promptitude of a police officer on one occasion, and a signalman on another. Respondent had pleaded exhaustion from work and driving himself, and said that he had since employed a chauffeur and had had no desire for alcohol.

Mr. Sandeman went into the witness-box and answered questions from the chair. He admitted the facts and said he intended to abstain from alcohol in future.

After deliberation, the President announced that judgment had been postponed until the November session, 1932.

*The Case of Horatio Walter James Steen*, registered as of 62, Warwick-square, S.W.1, M.B., Ch.B., 1921, U.Edin., who had been summoned to appear before the Council on the following charge :—

"That you were convicted at the County of London Sessions commencing on June 2nd, 1931, of the following felony—namely, of stealing seven shirts and other articles, value together £21, the property of Hugh Williams, and of the following misdemeanours—namely, of obtaining from John Atkins and R. H. McBirnie, and F. Milne, six suits of pyjamas, six tunic shirts and six dress shirts, and of obtaining from McDougall and Company, Ltd., one Highland evening dress outfit and one sporran and chain—in each case by false pretences with intent to defraud—and were sentenced to four months' imprisonment."

Mr. Steen was not present and was not represented. Mr. Harper said he had no idea whether or not respondent had received the Notice. He had been seen since he left Warwick-square, but his whereabouts were unknown.

Mr. Percival Norman, the detective of the Criminal Investigation Department who had been in charge of the case, testified to the facts. The Council deliberated in camera on the charge before them and then heard Mr. Norman's testimony as to previous complaints for three years against Dr. Steen. As he was a doctor and member of the Westminster City Council the police had not taken action; the complaints had all related to stealing.

After further deliberation the President announced that the Registrar had been directed to erase Dr. Steen's name from the Register.

## Penal Cases Reported by the Dental Board.

*The Case of Arthur Leonard Heath*, registered as of 37, Martin-way, Merton Park, S.W. 20, "Dentist 1921." The Dental Board reported that Mr. Heath had practised in the same double-fronted shop with one W. J. Clisby, who had been prosecuted by the Board on Oct. 20th, 1931, for practising dentistry while not being on the Dentists' Register. The two men had worked together and kept a joint diary. After hearing evidence and studying documents the Board had found that the said Arthur Leonard Heath had by his presence, countenance, advice, assistance, or coöperation, knowingly enabled the said William John Clisby to practise dentistry at 50, Kennington-road, S.E., as if he were registered, and that the name of Mr. Heath ought to be erased from the Register.

Mr. Heath attended, and was accompanied by his solicitor, Mr. Jonas A. T. Good, who complained of the difficulty in being unable to compel witnesses before the Board or the Council, declaring that he had a witness who could prove that his client had not the knowledge alleged. He argued that only one case was cited, and that on that occasion Clisby had acted in Heath's absence; there was, he maintained, no evidence of collusion.

The President pointed out that the case could not be retried.

Mr. Harper, solicitor to the Dental Board, drew attention to the joint diary, and said that Heath had been employed by Clisby for two years.

After deliberation in camera the President announced that the Council had directed the Registrar of the Dental Board to remove Mr. Heath's name from the Register.

*The Case of Arthur Percy Hogarth*, registered as of 50, Shakespeare-street, Bradford, "Dentist 1921."

The Dental Board, having considered the two charges against the said Arthur Percy Hogarth, reported as follows:—

On Nov. 11th, 1931, the inquiry was held. The said Arthur Percy Hogarth attended before the Board and was duly heard. He was not represented by counsel or solicitor. The following facts were established by the evidence:—

1. (*a*) Mr. Hogarth, in conjunction with one H. Bramley, had, in September, 1930, by means of a personal visit and handing a business card, and subsequently a bundle of the same, canvassed one Mrs. Frances Stead.

(*b*) He had, also in conjunction with Bramley, in September, 1930, canvassed by means of a personal visit one Mrs. Gertrude Elsie Kellock.

(*c*) He had, also in conjunction with Bramley, in October, 1930, canvassed by means of a personal visit and handing her a business card, one Mrs. Emily Linacre.

(*d*) He had, also in conjunction with Bramley, in October, 1930, canvassed one Mrs. Ada Warden.

2. Mr. Hogarth had also, by his association with Bramley, an unregistered person, enabled the latter, by his dental treatment of the persons aforesaid, to practise as if he were registered.

The Board had therefore found that the name of Mr. Hogarth ought to be erased from the Register.

Mr. Hogarth did not attend, but sent a letter enclosing a testimonial from his present employer. After deliberation in camera the President announced that the Registrar of the Dental Board had been instructed to remove Mr. Hogarth's name from the Register.

*The Case of Harry Ernest Best*, registered as of 83, Brondesbury-villas, Kilburn, N.W. 6, "Dentist 1921."

The Dental Board, having considered the charge against the said Harry Ernest Best, reported as follows:—

On Nov. 12th, 1931, the inquiry was held. The said Harry Ernest Best attended before the Board and was duly heard. He was not represented by counsel or solicitor. The following facts were established by the evidence:—

Mr. Best had at a date which she could not precisely remember, but some time previous to February, 1930, canvassed one Mrs. Webb at Chippenham-gardens, Kilburn, N.W. Mr. Best had in the month of September, 1931, also canvassed from house to house in Avenue-road, St. John's Wood, in Belsize-grove, Hampstead, and in King Henry's-road, Hampstead.

The Dental Board had therefore found that Mr. Best's name ought to be erased from the Register.

Mr. Best attended and addressed the Council, denying that he had canvassed; he said he had only been selling tooth-powder, which he had sold for 30 years. Mr. Harper read out Mr. Best's defence before the Dental Board.

After deliberation in camera the President announced that the Registrar had been instructed to remove Mr. Best's name from the Register.

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## VIENNA.

(FROM OUR OWN CORRESPONDENT.)

HOLZKNECHT, ECONOMO, FORAMITTI, AND SCHNITZLER.

THE medical profession here has lately lost four men of international reputation.

Prof. Guido Holzknecht, whose death from X ray lesions you reported on Nov. 14th (p. 1085), was one of the first to grasp the medical applications of Rontgen's discovery. He began the study of radiology at Nothnagel's clinic for materia medica, and in 1901 published his first important standard book and atlas—on radiography of the thorax and abdomen. In 1902 he constructed his famous instrument for measuring the dosage of X rays, and his unit, "H" (Holzknecht), was accepted by international agreement in his honour. At that time he was already suffering from the effects of the X rays, for as yet the necessity of careful precautions was not fully realised. Serious burns on some of his fingers developed, and later made amputation necessary. Meanwhile he had organised a large research institute at the Vienna General Hospital, where a veritable "Holzknecht school" soon sprang into existence, with pupils from all parts of the world. Methods of localisation, diagnosis, treatment, and biological research were constantly being devised at this "Central Rontgen Institute." To-day nearly all the principal seats of radiology in Austria and Germany, as well as in many countries overseas, are occupied by former pupils of Holzknecht, who was recognised as the leading authority on X rays in German-speaking countries. He had the gift of finding out talent, and was only too happy to help his collaborators whatever their creed, race, or nationality.

Prof. Constantin Economo, whose death at the age of 58 has come as a surprise to his friends, was a many-sided man whose interests extended over such various fields as aviation and architecture, as well as medicine. His two best-known works were his monograph on encephalitis lethargica (1917), in which he defined the entity—hitherto not recognised—of the seven types of "sleepy sickness" in Europe, and his book on the systematic investigation of the cerebral cortex. This "Atlas of the Cyto-architecture of the Cortex" won him world fame. He also investigated the function of different nuclei and centres in the brain and the medulla, especially the centres of sleep and of mastication. Only quite recently he organised a laboratory for brain research, the first of

its kind in the world, and at the time of his death he was just finishing a large work on "Myelo-architecture of the Brain."

Dr. Foramitti was the leading medical man in the Austrian Health Ministry and this country's delegate to the Health Committee of the League of Nations. He was the organiser of Austrian hospital development, and the welfare work for adolescents, which has proved so important in the restoration of the nation, is largely due to his incessant efforts. He also was only 58 years of age.

Lastly, I may mention the name of Dr. Arthur Schnitzler, son of the eminent laryngologist of bygone days. Dr. Schnitzler was far better known, of course, for his literary and poetical works than for his medical achievements. Apart from his early coöperation with his brother-in-law, Prof. Hajek—the present chief of the clinic for rhinolaryngology in Vienna—he took a great interest in psycho-analysis, even long before Freud published his researches. The poet-physician, as Schnitzler may be termed, applied intuitively the elements of analysis in his well-known plays and dramas, some of which won for him the title of representative of Austrian poetry. He gave up medical practice many years ago, and lived only for his literary work.

### INFECTION AND DISINFECTION.

The regulations of the Vienna Board of Health, as now amended, require that the following diseases must be notified to the health authorities: scarlet fever, diphtheria, typhoid and paratyphoid fever, dysentery, epidemic meningitis, puerperal fever, typhus, small-pox, Asiatic cholera, recurrent fever, leprosy, trachoma, yellow fever, glanders, anthrax, human rabies and injuries caused by diseased or suspected animals, malaria, varicella, anterior poliomyelitis, encephalitis lethargica, and influenza; furthermore, all outbreaks of measles, whooping-cough, mumps, and rubeola, if occurring in institutes or boarding-schools. Under the Health Act of 1918 notification must also be made of infectious sexual diseases, if transmission is very likely to take place, and also of tuberculosis, if the patients live in close contact with infants—i.e., in the same room or lodging. Anyone connected with a school—teacher or child—who is suffering from one of these diseases must be kept away from work until he can show a certificate of final disinfection. This applies also to kindergartens and infant institutions. Only in cases of malaria, measles, varicella, influenza, whooping-cough, rubeola, and infectious sexual diseases is a certificate of disinfection unnecessary; in these cases a certificate, signed by the attending medical man, that the patient is cured, will be deemed sufficient to readmit the former patient to school. Acute syphilitic manifestations, scabies, favus, trichophytic and microsporic affections and similar transmissible skin conditions are also deemed reasons for excluding the patient from school and similar institutions.

To be considered "final," disinfection must be done by officers of the municipal disinfection department. As a rule, no fee is asked for this, but where repeated disinfection is asked for, the department may make certain charges. Disinfection is mainly effected, either by steam or by formaldehyde vapours, in the public disinfecting institute, but non-transportable objects are treated on the spot with chemical disinfectants. After small-pox, plague, typhus, yellow fever, and malaria, special disinfecting methods are provided, according to the nature of the disease and its transmissibility. The staff of the department consists of 25 trained men, working under the control of three sanitary inspectors, in three institutions. Each of these institutions has two steam disinfection plants, one chamber for formaldehyde gas, and one for sulphuric gas, besides a large stove for destroying articles unfit for disinfection. One institution has a 24-hours' service for emergencies—for example, in railway stations, police stations, and quarantine stations. The number of final disinfections rose steadily from 5570 in 1920 to 21,031 in 1930.

Comparison of the prophylactic and disinfecting measures at Vienna with those used in the greater cities of Germany shows that here they are much more intensive and exacting. This is because Vienna is situated where the central European east-to-west traffic crosses the south-north road, at a point situated well to the east, and therefore more exposed to the importation of disease. The value of the methods used in Vienna is shown by the fact that the average yearly mortality from acute transmissible diseases dropped from 296 in 1871–1900 to 31 in 1921–30.

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## IRELAND.

(FROM OUR OWN CORRESPONDENT.)

### A MENTAL HOSPITAL APPOINTMENT.

A DISPUTE has been going on for some months between the Minister for Local Government and Public Health, on the one hand, and the committee of the Cork Mental Hospital on the other, concerning the appointment of a medical superintendent for that institution. The office having become vacant in November, 1930, the committee wished to promote their senior assistant medical officer, who had long and excellent service in the mental hospital. The Minister for Local Government and Public Health refused to permit the committee to fill the vacancy by promotion, and in April last referred the choice of a medical superintendent to the Appointments Commission. In due time this commission recommended another candidate for appointment. The committee of the Mental Hospital refused to accept the recommendation, and a long drawn-out correspondence with the Minister followed. The Minister proved obdurate, and on Oct. 20th, after considering a letter from the Minister insisting on the appointment of the candidate recommended by the Appointments Commission, the committee of the Mental Hospital adjourned consideration of the whole question, and decided to take legal advice as to their powers in the matter. The next step was an application in the High Court, on behalf of the Minister, for a conditional order of *mandamus* to compel the committee of the Cork Mental Hospital to appoint as medical superintendent the person who had been recommended to them pursuant to Section 6 of the Local Authorities (Officers and Authorities) Act, 1926. The application for a conditional order was granted.

### THE CLEAN MILK QUESTION.

The President and Fellows of the Royal College of Physicians of Ireland, at their last meeting, passed a resolution expressing satisfaction at the announcement of the Government respecting speedy legislation to deal with the provision of clean milk. The opinion was also expressed that the President and Fellows were satisfied that there was no form of adulterated food, common at the present day, which was at all so dangerous as was milk infected with tubercle bacilli, yet there was reason to believe that such milk was not uncommonly sold to the public.

# CORRESPONDENCE

## WINTERING IN ENGLAND.

*To the Editor of* THE LANCET.

SIR,—Many persons who have been accustomed to go abroad for reasons of health are at the present time, from obvious causes, unable or unwilling to do so. The limitation of choice has, however, its compensations, for the British Islands are endowed with a large number of natural winter resorts. Their wide extent, variety, and great medical value, particularly on the south and west coasts, are, we think, too little recognised.

More precise and authoritative information on the character and value of the home resorts in the winter months seems therefore desirable, and a medical statement on the Winter Health Resorts of the British Islands is accordingly being prepared.

We cordially invite all members of the medical profession who are interested in this matter to a meeting at the Institute of Hygiene, 28, Portland-place, on Wednesday, Dec. 9th, at 5 P.M., to receive and consider this statement with a view to publication.

We are, Sir, yours faithfully,

E. FARQUHAR BUZZARD, THOS. WATTS EDEN, R. H. ELLIOT, R. FORTESCUE FOX, THOMAS HORDER, ROBERT HUTCHISON, E. P. POULTON, HUMPHRY ROLLESTON, STCLAIR THOMSON, WILLIAM H. WILLCOX, W. G. WILLOUGHBY, R. A. YOUNG.

36, Devonshire-place, W.1., Dec. 1st, 1931.

## PYELITIS IN THE NEW-BORN.

*To the Editor of* THE LANCET.

SIR,—Dr. Donald Paterson's valuable note in your last issue (p. 1186) on pyelitis in new-born infants serves to emphasise the importance of a satisfactory examination of the urine in every sick infant. It is still not widely realised that urinary infection in babies may cause symptoms of a nature unexpected by those who have not been called upon to deal with many of these cases.

Although neonatal pyelitis is not a common complaint it is seen from time to time in any large maternity hospital, and my own experience convinces me that Dr. Paterson is right in saying that it occurs more often than is generally supposed. I think, also, that it is at least as common in boys as in girls; in both sexes the possibility of the infection must be remembered if the proper diagnosis is to be made, and curative treatment begun. During the past month I have dealt with two examples in the Liverpool Maternity Hospital, and they illustrate the clinical picture which is, in my experience, the common one. Both were male infants, and both developed convulsions of unknown nature and without fever, one on the fifth day of life, and the other on the eighth day. Intracranial birth injury was suspected in the first example because the child was large (9 lb. 3 oz.), the mother was a primigravida, and the delivery was instrumental. The other baby was born by Cæsarean section to a tuberculous mother.

The urine is obtained with ease from baby boys by strapping a test-tube to the penis, but the nurse must first cleanse the glans penis and prepuce, and she must examine the tube frequently in order that the reaction of the urine may be noted as soon as possible after the specimen is passed. It is found to be acid, and microscopical examination shows pus cells and organisms, generally colon bacilli.

Considerable doses of sodium citrate may be necessary to control the infection; both the above cases responded rapidly to a dosage of grs. 60 in 24 hours. The convulsions usually cease as soon as the urine becomes alkaline, but the treatment should be continued in doses sufficient to maintain alkalinity of the urine for 10 to 14 days after apparent recovery.

I am, Sir, yours faithfully,

NORMAN B. CAPON, M.D., F.R.C.P.

Liverpool, Nov. 30th, 1931.

## ANTIMENINGOCOCCUS SERUM.

*To the Editor of* THE LANCET.

SIR,—The chief lesson learnt from the specific treatment of cerebro-spinal fever among troops during the war—namely, the excellent results to be obtained by treating Type I. cases with the homologous antiserum—has been confirmed in a striking manner by the results reported from the Aldershot Command (see THE LANCET, Nov. 28th, p. 1199), which reflect the highest credit on the officers concerned and on the serum department of the Lister Institute.

On the other hand, the fact that the so-called polyvalent antimeningococcus sera prepared in this country and available at the early stages of the outbreak, contained no demonstrable antibody to Type I., and failed therapeutically, is equally striking.

For Type I. meningococcus is the chief epidemic strain of that micro-organism. During the rising curve of the epidemic among recruits in training during the early months of 1915, when as many as 120 cases were notified a week, this was the strain operating, and then also the available antimeningococcus sera were deficient in antibody and in therapeutic value, with the result that the mortality was 50 per cent. At that time I obtained strains of meningococcus from the Pasteur Institute, and found that our Type I. strain was identical with the meningococcus of Dopter, Type II. being an example of his parameningococcus. The very large number of observations made in the study of cerebro-spinal fever outbreaks among troops during the war showed that some 80 per cent. of the strains operating could be included in Types I. and II., and the remainder in Types III. and IV. Clinically, Type I. cases were the most severe, yet when the homologous antiserum was applied their recovery-rate was 90 per cent.

In these circumstances it is pathetic to see that during the past two years cerebro-spinal fever outbreaks have been occurring in America and this country in which the dominant types operating have been I.–III., and that the mortality has been severe in this the most easily treated variety of cerebro-spinal fever for want of specific serum.

The chief difficulty, of course, is that the type of meningococcus operating in a given outbreak does not remain constant, other types appearing as time goes on. This is what happened in the outbreaks among troops during the war, and since then we have been passing through an inter-epidemic period, the cases being chiefly among children and due to aberrant strains of Type II. Over all this time, however, the original strain of Type I., Littledale, has been kept up in the National Collection of Type

Cultures, and in a recent test has been found to preserve its antigenic specificity unimpaired.

It would seem that the best way to proceed is to prepare antiserum to each of the types of meningococcus separately, and to pool these sera for use until the type of the coccus infecting the patient is known, and then to employ monotypical serum. This is sometimes said to be impracticable, but we did it during the latter part of the war, and the results were encouraging. At least, all samples of polyvalent serum should contain demonstrable antibody to Type I.

Last summer the Medical Research Council invited a conference of representatives of the three Fighting Services, of the Ministry of Health, and of those interested in the manufacture and supply of this kind of serum, for the discussion of the various problems involved. Two practical results have followed the recommendations of the conference. The Council have secured the supply of diagnostic antimeningococcus sera from their Standards Laboratory at Oxford. These are now announced as ready for issue. Their use will allow the identification of meningococcus type in the event of any outbreak of cerebro-spinal fever, and indicate the therapeutic serum to be used. Arrangements have also been made for the manufacture of polyvalent serum, in the preparation of which the various strains of organisms isolated from different outbreaks of the disease have been collected through the Ministry of Health laboratory.

Unless I am greatly mistaken, treatment both prophylactic and therapeutic by specific antisera will be in demand more and more as immunological knowledge advances. In the prevention and treatment of virus diseases of man, for instance, the application of specific antisera is at present in its earliest infancy.

I am, Sir, yours faithfully,

M. H. GORDON.

St. Bartholomew's Hospital, Nov. 30th, 1931.

## CANCER OF THE CERVIX.

*To the Editor of* THE LANCET.

SIR,—The classification and labelling of tumours has been a source of pleasure to many, and, indeed, it is a very agreeable pastime so long as it is not pursued too seriously. But there has always been a tendency on the part of certain exponents of the game to introduce a system of conventions which converts what should be a pleasant relaxation for the many into a serious occupation for the few. Many of these conventions come from America, their natural home, but Krompecher, who first recognised the basal-celled carcinoma, must be held responsible for the confusion which surrounds the squamous-celled carcinomata, a confusion to which I am sorry to see Prof. F. J. Browne contributing. Surely any attempt to force the tumours derived from squamous epithelium into fixed and unalterable groups must fail from the very nature of the tissue concerned. Prickle cells, granular cells, and squames are merely stages in the development of the cells of the Malpighian layer, every one of which is a potential squame. The malignant epithelial tumour may reproduce with exactitude normal epithelium, or it may be so dedifferentiated or anaplastic as to fail to form not only granular and horny cells but even prickle cells. Every pathologist could produce basal-celled carcinomata which show here and there excellent differentiation; and perfectly typical metaplastic squamous-celled carcinomata occurring in the lung, the gall-bladder, and elsewhere are common enough. On the other hand, tumours derived from squamous epithelium may show such lack of differentiation that their source can only be suspected. Experience may enable us to recognise them for what they are, but as individuals they merit no more definite a name than carcinoma simplex.

If Prof. Browne has in mind the squamous-celled carcinoma of, say, the gall-bladder when he refuses to define a squamous epithelioma as a cancer derived from squamous epithelium, there is much to be said for his point of view. If, however, he prefers a cytological to a histogenetic classification he will increase our difficulties considerably unless he takes account of the abnormal potentialities of the malignant cell.

I am, Sir, yours faithfully,

E. H. KETTLE.

St. Bartholomew's Hospital, E.C., Nov. 30th, 1931.

*To the Editor of* THE LANCET.

SIR,—Prof. F. J. Browne's letter in your issue of Nov. 28th contains opinions which few will accept. His novel definition of a squamous epithelioma is unlikely to meet with general approval, for it excludes from this category any squamous-celled carcinoma which does not contain prickle cells, and it denies that a squamous epithelioma may be derived from the basal cells of squamous epithelium. I think it unlikely that present views will be modified by the opinion of Prof. Browne. The same arguments that I used in my letter of Nov. 21st can still be used against Prof. Browne's point of view. The common form of carcinoma of the cervix is a squamous-celled growth, and the differences from a carcinoma of the skin can quite adequately be explained along the lines indicated in my previous letter.

Again, I do not think that Prof. Browne's suggested classification of the forms of carcinoma of the cervix will be much favoured. The subject has been dealt with already in Germany, France, and America, and Prof. Browne's scheme cannot compare with those that have been published in these countries.

I am, Sir, yours faithfully,

WILFRED SHAW.

Weymouth-street, W., Nov. 28th, 1931.

## CALCIUM IN BRONCHIAL ASTHMA.

*To the Editor of* THE LANCET.

SIR,—I have read with great interest Dr. Cammidge's account of two cases of bronchial asthma in your issue of Nov. 14th (p. 1070), although some of his findings, especially the calcium-content of the blood and his inferences drawn therefrom, do not entirely comport with my experience. The lessened calcium-content which he found does not, in my opinion, place asthma among the deficiency diseases. I would not place this deficiency in the line of causation but a step further on as an effect, a natural attempt at cure.

In pneumonia there is a great deficiency of calcium in the blood, and one of the earliest signs of the disease is an almost complete absence of calcium in the urine. The calcium is thrown out with the fibrin into the air cells, and there is very little left to be excreted in the urine. The more tough and scanty the expectoration the better the prognosis, while, on the other hand, the more liquid and hæmorrhagic the expectoration the worse the prognosis. Thus plenty of calcium in the blood and high blood pressure stand in the line of prevention and cure.

In asthma the scanty tough material, most difficult to expectorate, is due to the excess of calcium cement poured out into the bronchial tubes, and this calcium contributes to the spasm of the bronchi. The more alkaline the blood the less lime will it hold. With the alkalosis of which Dr. Cammidge speaks, the alkali being saturated with $CO_2$, the lime is thrown down as insoluble carbonate; hence we get a natural but clumsy attempt at cure, nature making the best use of the material at hand. Many years ago in an address on the use and abuse of the lime salts in health and disease, I said [1]:—

*Asthma.*—In the attacks there is an excess of free calcium ions in the blood, and in the treatment, both during and between the paroxysms, the intake of calcium in the diet should be strictly regulated. During the paroxysm not merely antispasmodics, but also decalcifying agents should be freely prescribed. A milk diet should be rigidly excluded.

I like to draw a distinction between the free and fixed calcium in the blood, but this would carry us too far afield. The excess of calcium is often used up in making rigid costal cartilages, mischief which should be prevented by the free use of decalcifying agents and those which increase calcium metabolism, such as the citrates, iodides, and thyroid. Of course agents such as adrenalin which act on the sympathetic should not be neglected, while synergists of the parasympathetic, such as pilocarpine, should be eschewed. Dr. Cammidge and I are agreed about the use of purgatives, hepatic stimulants, and intestinal antiseptics. No doubt the bronchitic element is often the predominant factor when a lime salt may be required, in which case I prefer the acid salt, calcium chloride. Ammoniun chloride will also be often found useful.

I am, Sir, yours faithfully,

Hindhead, Nov. 24th, 1931. JAMES BARR.

## THE ANATOMICAL SUBDIVISIONS OF THE STOMACH.

*To the Editor of* THE LANCET.

SIR,—Prof. H. M. Turnbull has drawn my attention to a somewhat serious omission from my recent Croonian lectures on Precancerous Lesions of the Alimentary Tract. In the section dealing with chronic gastric ulcer [2] there is no sufficient indication of the exact anatomical subdivisions of the stomach to which reference is made, for example, in Tables X. to XIII. In current anatomical nomenclature the stomach is divided into cardiac and pyloric portions, which are separated from one another by the incisura angularis of the lesser curvature. The cardiac portion in turn consists of two parts: the fundus, which lies above a horizontal plane passing through the cardiac orifice, and the body, which lies below it. The pyloric portion is also subdivided into the pyloric canal (which terminates in the pylorus), and the pyloric antrum, leading up to it. The pyloric canal varies in length from ¾ in. to 1¼ in., and is said to be separated from the pyloric antrum by the sulcus intermedius of the greater curvature.

These various divisions are physiological rather than anatomical, and in the post-mortem room it is often impossible to distinguish with any certainty either an incisura angularis or a sulcus intermedius. Our routine procedure is to lay open the stomach along the line of the greater curvature and to spread it out for examination on a flat (wooden) surface. For convenience, and especially in view of the frequent absence of normal markings, the pre-pyloric inch is taken as the equivalent of the "pyloric canal," while the "lesser curvature region" (of Tables X. to XIII.) consists of the line of the lesser curvature together with 1 in. on each side of it *but stopping short 1 in. from either ostium.*

The centre of the lesion, be it ulcer or growth, is assumed to have been the starting point of the pathological process, and this is probably a sufficiently accurate assumption in the great majority of cases.

I am, Sir, yours faithfully,

M. J. STEWART.

School of Medicine, Leeds, Nov. 25th, 1931.

[1] Brit. Med. Jour., 1910, ii., 833.
[2] THE LANCET, Sept. 19th, p. 617.

## PSYCHOLOGICAL ASPECTS OF MEDICINE.

*To the Editor of* THE LANCET.

SIR,—As a general practitioner, I venture to express an opinion, derived from experience, that ignorance of psychology in its relations to healing—or a neglect to study those relationships—is as disastrous to the practice of the science and art of healing as is ignorance of scientific medicine. Science deals with the part, psychology with the whole individual. I have seen cases of physical disease treated psychologically, with very indifferent results, and also many cases treated physically whose ætiology was mainly psychological—e.g., a gastropexy (followed perforce by a gastro-jejunostomy) for as plain a case of negativism as could be found in any psychological text-book. And I have seen a case of carcinoma of the rectum treated (in the absence of a correct diagnosis) on psychological lines.

The points I would emphasise are: (1) A sound working knowledge of psychology, adequate for general practice, is not difficult to acquire. (2) It extends the sphere of usefulness of the general practitioner to his patients. (3) It is complementary, not antagonistic, to his scientific medical knowledge. (4) It greatly enhances his interest in his work and brings him much nearer to his patients, for he has two lines of approach to every case of illness.

It is no great credit to me that I treated a man for some months for "irregular heart" until, making a study of psychology, my eyes were opened to the possibility of a psychological background to his illness. Investigation showed a dramatic story of "having been shut up alive" in a huge gas oven and being rescued "at the last gasp." Frank discussion of this story completely removed a multitude of associated symptoms too numerous to set out in detail, and the man has remained well for months.

One can imagine a pre-Listerian practitioner feeling about scientific medicine much what the modern practitioner sometimes feels about applied psychotherapy.

I am, Sir, yours faithfully,

HOWARD E. COLLIER.

Redditch, Worcs., Nov. 27th, 1931.

## PSYCHOLOGICAL ASPECTS OF GYNÆCOLOGY.

*To the Editor of* THE LANCET.

SIR,—The Bradshaw lecturer and Dr. Crookshank cry "Educate the gynæcologist in psychology." Dr. Edwards follows, "Educate the general practitioner." May I, as a general practitioner, add "Educate the public"? It is human nature to try to shift responsibility. So many of us would prefer a mechanical explanation of our illnesses; it excuses us from all blame. A woman will always accept as a

cause for uterine inertia that "her bones are a little too small," but she will be indignant if the cessation of her "pains" is attributed to her lack of courage, loss of confidence, and fear of pain. A patient with dysmenorrhœa will agree to an explanation of a kinked cervix, but she will rebel if the "masculine protest" is served up as the true cause.

I agree that the general practitioner is in the best position to assess the domestic factors in gynæcological complaints. He has seen the patient perhaps in parturition and lactation, and knows how she generally reacts to problems in general. And she will be more willing to discuss with him her marital and social problems. But all these opportunities without knowledge of their application are useless. Here is a fresh field for the general practitioner, whose constant complaint is that his field of work is rapidly contracting. As Dr. Edwards writes, the general practitioner would find a course in psychotherapeutic technique most valuable.

I am, Sir, yours faithfully,

Bristol, Nov. 29th, 1931. FRANK BODMAN.

## CÆSAREAN SECTION.

*To the Editor of* THE LANCET.

SIR,—I am indebted to your reviewer in the issue of Nov. 14th (p. 1084) for calling my attention to an error which had escaped notice in my little book on Cæsarean section. The words "utero-vesical pouch" should be substituted for "cave of Retzius" on pages 67 and 69.

May I also be allowed to point out that in the technique for suspect cases the uterus is opened as low as possible in the upper segment, and great care is taken to prevent contamination of the peritoneal cavity with infected liquor amnii. Uterine massage is employed, along with pituitrin and ergotin, to ensure the good retraction specially necessary in potentially septic cases. At the operation normal saline solution is administered with, or at the same time as, antistreptococcal serum, to avert anaphylaxis, and the Fowler position is adopted as soon as the condition of the patient allows it.

In the after-treatment enemata are employed early, as well as purgatives, to assist elimination, while pituitrin helps to promote good uterine retraction. At the same time I believe that peritoneal drainage and the early use of serum were extremely important factors in the successful results obtained in my series of cases. The careful nursing they received enabled complications to be dealt with early.

I am, Sir, yours faithfully,

FRANCES IVENS-KNOWLES.

Wimpole-street, W., Nov. 28th, 1931.

## RESEARCH IN ASTHMA.

### THE URINARY PROTEOSE.

*To the Editor of* THE LANCET.

SIR,—Dr. Freeman's remarks on the "proteose," isolated from the urine by Dr. Oriel in certain morbid conditions, reveal a misapprehension as to its significance and incidentally to that of what he terms the dermal reaction. I will deal with the latter first.

To begin with, it is essential to distinguish between *epidermal* and *dermal* sensitisation. The urticarial wheal is the commonest response when dermal hypersensitiveness exists. It is due, as the researches of Lewis and his colleagues have shown, to the liberation of histamine or some allied substance by the skin in response to injuries of various kinds. In a case of urticaria of internal origin, whether a known primary antigen—e.g., fish or egg—is responsible (and this is relatively uncommon) or not, the liberation of histamine is presumably due to the damage resulting from the reaction of the antigenic substance with specific fixed antibodies in the *dermal* tissues. In a person who develops urticaria on the ingestion of a certain food, the application of it to the skin by the scratch or intradermal method will naturally cause a local urticarial reaction.

When epidermal hypersensitiveness, on the other hand, is present, the reaction in the skin is an *eczematous* one, and it is now held that this depends upon sensitiveness of cells in the rete Malpighii. This type of cutaneous reaction is entirely distinct from the "triple response" that produces the urticarial wheal. It is apparently independent of histamine-production, for even in eczematous persons I have never succeeded in provoking an eczematous reaction by bandaging histamine on the skin. To histamine the response is always urticarial.

Although an eruption consisting of mixed urticarial and eczematous elements may occur, for example in serum sickness and fish-poisoning, thus indicating simultaneous dermal and epidermal sensitisation, it is exceptional; but an eczematous response to one antigen and an urticarial reaction to another in the same person is not very uncommon. It is owing to this difference in cutaneous reaction according to the part of the skin in which the hypersensitiveness is localised that dermatologists now use in investigating cases of eczema the contact or "patch" test, first indicated by Jadassohn, which consists in the application for 24 hours to the *uninjured* surface of the skin of suspected substances. As Sulzberger and Wise, MacKee, and others have recently pointed out, positive results—i.e., an acute eczematous reaction at the site of application—are often obtained by this method after the scratch and intradermal tests have proved negative.

Two other points of great importance, which have been established by the patch test, are: (1) that phases of extreme hypersensitiveness, lesser hypersensitiveness, and non-sensitiveness occur, so that a person may give a strongly positive reaction at one time and a negative one at another—the non-sensitive phase is particularly likely to occur after an acute exacerbation of the patient's symptom; and (2) that one area of skin may be hypersensitive to a given irritant and another non-sensitive, for example the skin of the eyelids may be sensitised and that of the forearm or other parts not so.

It will be clear from what has been said that to depend, as Dr. Freeman appears to do, upon dermal reactions, provoked, I presume, by the scratch or intradermal tests, as evidence of hypersensitiveness or allergy towards a given substance is to misconstrue their significance. They indicate dermal sensitisation and no more. As has been seen, they may be negative even when another part of the skin, the epidermis, is sensitised. To expect them necessarily to be positive when other structures, such as the bronchial, intestinal, and uterine musculature, or the mucous membranes of the respiratory and alimentary tracts are sensitised is, to say the least of it, unreasonable.

To come now to the "proteose," the proofs that in certain acute and chronic allergic states it contains what may be justly termed a specific substance may be considered under two headings—experimental and clinical.

(1) *Experimental.*—Dr. Freeman does not refer to the careful and laborious experiments carried out by

Dr. Oriel upon the guinea-pig uterus according to the Dale technique. Some of them have been published,[1] and I need only refer to two. If a guinea-pig be sensitised to milk, a typical contraction will be obtained by applying a solution of proteose, prepared from a milk-sensitive person after he has taken milk, and also, of course, with milk itself; the proteose from a non-milk sensitive person will give a negative result. Conversely if a guinea-pig be sensitised by injections of the proteose from the milk-sensitive person, a uterine contraction will be obtained not only with the proteose, but also with milk. Dale's method of testing for specific tissue-sensitisation is, of course, accepted as being the most reliable, providing the correct technique is employed, and these experiments, which have been repeated again and again, seem to me conclusive.

With regard to cuti-reactions, I can assure Dr. Freeman that positive dermal reactions from the scratch and intradermal tests can often be obtained with autogenous urinary proteose, the degree of reaction depending upon the concentration of the solution. Of much greater interest to me, however, is the fact that in certain cases of eczema of internal origin I have obtained a strongly positive *eczematous* reaction by applying a solution of the patient's own proteose to an area of undamaged skin for 24 hours (patch test), whereas proteoses from other patients gave negative reactions. In one patient the experiment was repeated three times upon different areas of skin with success. This seems to me sufficient proof that in these cases the patient's own proteose contained the substance to which the epidermis was sensitised.

(2) *Clinical.*—For a long time past I have employed injections of autogenous urinary "proteose" with a view to desensitising patients suffering from such conditions as chronic urticaria, angioneurotic œdema, eczema of internal origin, certain forms of prurigo, dermatitis herpetiformis, psoriasis arthropathica, and, more recently, uncomplicated psoriasis. In many of these patients other allergic symptoms such as migraine, paroxysmal rhinitis, gastro-intestinal disturbance, and asthma, were present. As a result of very careful observations on a large number of cases, my conclusion is that it is not only specific, but incredibly and inconveniently so. My difficulty in many cases is to find a dose small enough to cause progressive improvement, and to avoid acute exacerbations of the patient's symptoms or progressive deterioration in his condition. At first I worked with dilutions of one in one million and one in a hundred thousand, and gave increasing doses often with very unpleasant results. I now employ minute doses—e.g., 0·025 to 0·1 c.cm. of a dilution of one in ten million and in some cases, for example of the prurigo of Besnier with asthma—the most sensitive group of all, of a one in a hundred million dilution, and, having found the dose on which the patient improves progressively, I do not increase, but rather decrease the dose. The amount of proteose present in 0·05 c.cm. of the latter dilution must be infinitesimal, but I have patients who cannot tolerate more without reaction. This would seem incredible, but I can vouch for its truth, and that it is not the result of suggestion is shown by the fact that most of my hypersensitive patients have previously received injections of non-specific desensitisers such as peptone, entero-vaccine, whole blood, aolan, &c., without any comparable reactions. An interesting point is that with proteose the usual time for a reaction to occur is on the third day after the injection, but this is not constant.

Surely a substance, which is capable of constantly producing acute exacerbations of a given patient's symptoms in a dose of, say, 0·1 c.cm. of a one in one million dilution, must be considered specific. The observations that Dr. Oriel and I have made on the clinical use of proteose have been amply and independently confirmed by others.

I cannot here discuss the actual nature and significance of the active substance which is contained in urinary proteose excreted in certain morbid states, but I see no reason to alter the opinion expressed in the original paper by Dr. Oriel and myself[2]—namely, that it is a secondary antigen resulting from the action of one or more primary antigens on the person's own tissues (probably in most instances the hepatic cells). If this is so, it would correspond to the secondary antigen, denaturisation product, or anaphylotoxin of Manwaring.[3]

I am, Sir, yours faithfully,

H. W. BARBER.

Devonshire-place, W., Nov. 30th, 1931.

[1] Proc. Roy. Soc. Med., July, 1931, p. 55.

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*To the Editor of* THE LANCET.

SIR,—In reply to Dr. John Freeman, I should like to draw attention to the following points.

(1) In the isolation of a new substance, it is an invariable experience that the original technique used for isolation has to be modified in the light of subsequent experience. The criterion of potency of "proteose" does not depend on its quantity, but on its power of reaction with antibodies; whereas a normal person excretes a certain quantity of "proteose," he never, as far as I am aware, gives a positive skin test to this substance, neither does its injection cause symptoms. (2) Dr. Barber will, I believe, explain to Dr. Freeman the technique which should be employed to elicit a specific reaction in the eczema-asthma syndrome. (3) The case Dr. Freeman quotes as giving a negative reaction to "proteose" by his technique, was used for the experiments in urinary antigens reported to the Royal Society of Medicine (Proc. Roy. Soc. Med., July, 1931, Sect. Dermatol., p. 55). In Fig. 1 the experiment with "proteose," labelled "Proteose, Dr. F.'s case," is the identical case which Dr. Freeman quotes as giving a negative skin reaction. Guinea-pig experiments were used in this connexion, as they are recognised to be more specific than skin tests. (4) In some work in process of publication, Dr. Conybeare, working at the Asthma Clinic, Guy's Hospital, undertook an independent investigation, using a "proteose" isolated from a patient suffering from hay-fever asthma, and tried the effect of intradermal tests with this patient's "proteose" on (*a*) pollen-sensitive subjects, (*b*) asthmatic subjects who were not pollen-sensitive, (*c*) normal controls. In this series of approximately 100 cases it was found that 80 per cent. of the pollen-sensitive patients gave positive skin tests to the hay-fever "proteose," whereas none of the normal controls did so. Some 20 per cent. of the asthmatic patients who were not pollen-sensitive gave positive tests. It is interesting that some of these patients were clinically hay-fever subjects, although they gave negative skin tests to pollen. Tracings of all these skin tests were kept, and will be available for inspection by anyone

[2] THE LANCET, 1930, ii., 231.

[3] Jour. Immunol., 1927, xiii., 63.

interested as soon as Dr. Conybeare, who is at present in America, is able to return them.

It seems to me that the question of the specificity of the "proteose" is of sufficient importance to justify further investigation, and I should be pleased to arrange a demonstration of the skin tests in which Dr. Freeman finds difficulty.

I am, Sir, yours faithfully,

London, W., Nov. 30th, 1931. G. H. ORIEL, M.D.

## ANÆSTHETISTS IN THE UNIT SYSTEM.

*To the Editor of* THE LANCET.

SIR,—As Dr. Webber points out, the question of anæsthetic services has a much wider scope than that originally discussed—viz., the provision of anæsthetics for surgical units in teaching hospitals. A recent development which demands the urgent attention of all specialists in anæsthesia is the proposal for the formation of a specialists panel and consultants board for the provision of appropriate services to members of a contributory scheme. Details of this proposal were published in the supplement to the *British Medical Journal* for Nov. 28th, and have already received prominent notice in the daily press. It will be readily understood, as pointed out in the memorandum describing the proposal, that the principle may well have a wide extension in the future. But though specialists of most other categories are included no mention is made of anæsthetists, nor is there any provision for their representation; an omission which must be rectified if an adequate and efficient hospital service of anæsthesia is to be maintained.

I am, Sir, yours faithfully,

R. J. CLAUSEN.

Clifton-hill, St. John's Wood, N.W., Nov. 28th, 1931.

## COMPILATION OF HUMAN PEDIGREES.

*To the Editor of* THE LANCET.

SIR,—I wish to support the suggestion put forward by Dr. C. P. Blacker for the formation of a section of the Royal Society of Medicine for the study of human genetics, as mentioned in Dr. Goodall's letter in your issue of Nov. 21st with the above title.

The report of a discussion on the Biological Foundations of Sociology, held at a meeting of the Sociological Society on Oct. 25th, 1905 (now 26 years ago), contains this paragraph: "The pressing need is for the teaching of the science of Heredity as an integral part of the medical curriculum, and the establishment of research laboratories and lectureships on Heredity in the Universities and other centres of learning." In the Galton memorial lecture on Racial Decay, delivered to the Eugenics Society three years ago,[1] I again drew attention to the urgent need for the teaching of genetics in our medical schools, and pointed out that the increased knowledge so obtained by medical men would not only help forward the eugenic movement, it would also promote the progress of preventive medicine in the widest sense.

Dr. Goodall emphasises the need for further research, and further teaching on the genetic side in "psychiatry, especially that branch of it which is connected with the work of public mental hospitals." The same is true of mental deficiency, and indeed of nearly every branch of medical science. It is because I believe that the formation of a section of the Royal Society of Medicine devoted to the study of human genetics would be a step forward in the achievement of these wider objects that I venture warmly to support the proposal.

I am, Sir, yours faithfully,

Leicester, Nov. 26th, 1931. C. J. BOND.

[1] See THE LANCET, 1928, i., 401.

*To the Editor of* THE LANCET.

SIR,—To all members of our profession who are interested in genetics I would seriously commend the annotation under this heading in your issue of Oct. 31st (p. 975), and also the excellent letter of Dr. Goodall (Nov. 21st, p. 1158). In it he says that in his opinion "it is high time that serious attention were given to the importance of having accurate and full records of family and personal disease and defect, both by the profession and the public." Amongst the investigations carried on at the German Research Institute in Munich there is a series concerning the inheritance of certain conditions to which I need only refer to emphasise the importance of such work, and to point out that we have no such institution in this country. In Dr. Blacker's interesting paper on the "Rôle of Genetics in the Future of Preventive Medicine," read at the last meeting of the British Association, he evidently looks forward to the time when records of heredities of all British residents will be obtainable. Needless to say that such records, from a medical point of view, would be invaluable, and as we have no institute similar to the one mentioned it would be of great importance to have a section of some society devoted entirely to the study of hereditary diseases.

I am, Sir, yours faithfully,

Cadogan-place, S.W., Nov. 30th, 1931. R. A. GIBBONS.

## THE C.S.M.M.G. AND LOYALTY.

*To the Editor of* THE LANCET.

SIR,—The annotation under this heading in your issue of Nov. 21st (p. 1142) will earn the gratitude of the 8000 odd members of the Chartered Society of Massage and Medical Gymnastics who have given their word "not to undertake any case except under the direction of a registered medical practitioner." These members (and those of the Incorporated Society of Trained Masseuses before them) have shown an exemplary loyalty to our profession—with only a few insignificant exceptions—for 37 years. The time is overdue for a reciprocal loyalty.

The law insists that the prescription of a medical man must be dispensed by a qualified chemist, and he must also apply to a qualified dentist should he recommend dental treatment. It does not compel the prescription of physical treatment to be carried out by a qualified assistant. But surely in their own interests, and in those of their patients, practitioners should see that this is done. To ensure it, all that is necessary is to inquire whether the masseur or masseuse is a *Chartered* masseur or masseuse, a title exclusively reserved by order of the Privy Council to members of the C.S.M.M.G. If a member, he or she is qualified by training and examination to do what is required, and has signed the triple undertaking to which you draw attention: to work only under medical supervision, not to advertise, and not to sell any goods in a professional capacity. It is only reasonable that a practitioner should see that his prescription is dispensed by qualified hands, whether it is for drugs, for dental treatment, or for physical treatment.

May I comment on the passage in your annotation which runs: "There are of course still a number of people who practise massage . . . without adequate training. . . . The number has been sensibly diminished by the action of the Society of Apothecaries in forming a roll of biophysical assistants. . . ." It would, I think, be more fair to say that they have been diminished since the Chartered Society came into being, and the recent action of the Society of Apothecaries will render it still more difficult for the unqualified practitioner to thrive. The members on the roll of the Society of Apothecaries recently numbered 966, of whom 867 are members of the Chartered Society, and the roll consists of those qualified to give heat, light, and certain electrical treatments. It makes no reference to those who are qualified to give treatment by massage, manipulation, and by medical gymnastics, save by placing an asterisk by the names of members of the Chartered Society. Yet it is mainly in the practice of these forms of physical treatment that the unqualified practitioner flourishes. Hence the importance of ascertaining whether the person employed to carry out physical treatment is a chartered masseur or masseuse.

The ultimate result must depend on the individual medical man, but his reciprocal loyalty has been well and truly earned.

I am, Sir, yours faithfully,

Park-crescent, W., Nov. 25th, 1931. JAMES MENNELL.

## DENTAL CARIES AND CIVILISATION.

*To the Editor of* THE LANCET.

SIR,—Dr. Hooper seems to be indulging in a mild form of leg-pulling. Is he prepared to include the lower limbs, along with the teeth, as useless appendages, simply because nowadays so many persons do not exercise them sufficiently? Surely a case of reductio ad absurdum. He appears to be unaware of the convincing researches of his own countryman, Percy R. Howe, of Harvard (to mention only one of many), who has proved that decaying teeth are a definite sign of decaying health.

I am, Sir, yours faithfully,

J. MENZIES CAMPBELL, D.D.S., L.D.S., F.R.S. Edin.

Glasgow, Nov. 28th, 1931.

*To the Editor of* THE LANCET.

SIR,—I read with no little surprise Dr. Hooper's assertion that a decaying dentition is normal for the present-day civilised human being, and that anyone with a sound dentition must be looked upon as abnormal. And yet so many dental practitioners are endeavouring to repair the ravages of dental caries and prevent its recurrence, as well as preaching the gospel of a sound dentition and its value, when (following Dr. Hooper) they might so easily anticipate nature and extract every tooth as it makes its appearance. Perhaps Dr. Hooper bases his assumption that the teeth are gradually disappearing on the undoubted fact that in many cases the lateral incisors and third molars are suppressed, or if present are often small and stunted. This, I think, can only be due to the great development of the brain which has taken place since primitive man, to the disappearance of his prognathism, and the consequent gradual shortening of the jaws. The laterals and third molars are being suppressed simply because there is not room for them.

No doubt Dr. Hooper is correct in saying that present-day soft foods are, at least in part, responsible for the widespread decay of teeth; but surely this is only an indication of the incorrectness of a diet which leads to decay, and incidentally to many digestive troubles. It hardly gives grounds for assuming that decay is a normal process, just because it is so widespread under present-day conditions.

I am, Sir, yours faithfully,

GEO. E. MORGAN, H.D.D. R.C.S. Edin., L.D.S.

Manor Court, Bramcote, Notts, Nov. 29th, 1931.

## A REQUEST FOR CURARE.

*To the Editor of* THE LANCET.

SIR,—For research purposes we wish to obtain supplies of the South American Indian arrow poison "curare." The quantities of this substance entering the markets are small at the present time. It may be that curare in gourds or small earthenware pots is held as a curiosity by some of your readers, who would be willing to let us have samples for trial.

We are, Sir, yours faithfully,

H. HARTRIDGE,
RANYARD WEST.

Physiological Laboratory, St. Bartholomew's Medical College, E.C.1, Nov. 27th, 1931.

## TICK-BITE FEVER.

*To the Editor of* THE LANCET.

SIR,—I would like to clarify a statement in the paper on Tick-bite Fever in Southern Africa by Drs. Troup and Pijper, published in your last issue. It is stated that Dr. Cormack and myself think tick bites are an improbable cause of typhus in Kenya because "tick bites are so common." This statement is misleading, and I would like to explain our argument a little more fully. Almost everyone in Kenya knows both the tick and the tick bite, and patients would, we think, be able to say whether or not they had been so bitten; but, on the contrary, they state that they have not been bitten by a tick, and generally cannot account for the bite at all. In one or two cases patients have stated that the bite was due to a small reddish insect, resembling a tick but much smaller, and, for these reasons amongst others, we have suggested the mite as the vector. I might add that the disease in Kenya is not harmless, for there is a mortality of 5 per cent. or over, and that, furthermore, recently Tonking has found rickettsia bodies in the bites. It has fallen to my lot to see most of the typhus cases in Nairobi of late years, and I can assure Drs. Troup and Pijper that it is not always possible to find a bite in these cases. A further interesting point is that the Weil-Felix reaction is not in any way relative to the bite—i.e., a case may give the reaction with a certain strain of *proteus*, whether there is an initial bite or not. In the opinion of Dr. Cormack and myself the non-reaction of certain cases is due to the fact that the particular *proteus* strain with which they will react has not yet been identified. When a complete range of these strains is available it is more than probable that every case of the type to which we refer (Kenya typhus) will react definitely with one of them.

I am, Sir, yours faithfully,

Harrow, Nov. 29th, 1931. N. P. JEWELL.

HOUNSLOW HOSPITAL.—Sir John Ferguson, M.P., has opened a new out-patients' department consisting of waiting, consulting, recovery, and dressing rooms, and almoner's office.

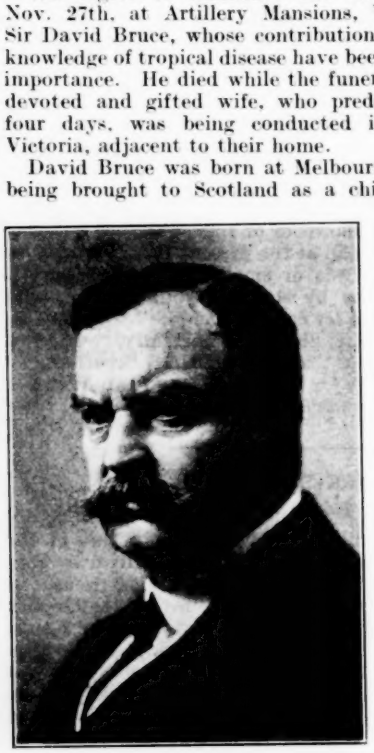
# OBITUARY

## SIR DAVID BRUCE, K.C.B., M.D. Edin., F.R.S.,

MAJOR-GENERAL, A.M.S. (RET.).

WE regret to announce the death on Friday, Nov. 27th, at Artillery Mansions, Westminster, of Sir David Bruce, whose contributions to the world's knowledge of tropical disease have been of outstanding importance. He died while the funeral service of his devoted and gifted wife, who predeceased him by four days, was being conducted in Christchurch, Victoria, adjacent to their home.

David Bruce was born at Melbourne in 1855, and, being brought to Scotland as a child, received his general education at the Stirling High School and his medical training in the University of Edinburgh. He left school early, and in the interval is said to have thought of becoming a professional footballer. He graduated at Edinburgh as M.B., C.M. in 1881, and in 1883, after a short spell of private practice, entered the R.A.M.C. As a medical student he was marked for his ability, perseverance, and fine physique. He formed one of a small group who devoted their spare time to the pursuit of field natural history, and their best known achievement was the finding of the snow-bunting on the Grampians. Among his companions in this group were two men destined, like himself, to become scientific leaders, William Herdman, the professor of natural history at Liverpool, and Noel Paton, the professor of physiology at Glasgow. It is on record that Bruce and Herdman made an expedition in search of a peregrine falcon's nest in the Ochils, and were guided to a nest on the face of a cliff with an overhang, so that the intending depredator had to be lowered by a rope until he was opposite to its site, when he must inswing to the nest. The guide begged that the "wee yun" (Herdman) should be chosen for the feat, but Bruce insisted it must be his job, and, despite attacks from the indignant mother bird, he obtained two nestlings, but was himself brought back to the top with difficulty.



SIR DAVID BRUCE

Bruce passed out of Netley at the head of the list, having married, before leaving home for his first appointment in Malta, Mary Elizabeth Steele, the daughter of a doctor at Reigate, and the couple got quarters in the Valetta Hospital. From the beginning of his career he showed intense interest in pathology, and his wife, who was a few years his senior, shared his enthusiastic desire to turn that interest into practical research. They had little money, and in those days no facilities for research were provided, but a microscope and the necessary appurtenances were obtained at their own cost, and in 1886, only three years after Bruce joined the service, he was able to announce the identification of a certain germ in Malta fever, or, as it is now termed, Mediterranean fever, although the new name does not express its confines. The cause of this painful and lingering disease, with its associated symptoms of fever, anæmia, and the affection of the joints, was then unknown, though its occurrence had been recognised in Gibralta and other places on the Mediterranean coast, especially Malta, for many years. In 1859, for example, Jeffrey Marston gave an accurate clinical account of the disease but could supply no suggestion as to ætiology that would account for the facts. The researches of Bruce and his colleagues resulted in the isolation of a special micro-organism, and the spread of this was traced to the milk of Maltese goats. In 1889 Bruce published his first full account of the clinical symptoms; and it may be interpolated here, that a commission, appointed by the Admiralty, the War Office, and the civil Government of Malta in 1904, investigated the whole question on the spot, confirmed the earlier work, and organised prophylactic treatment.

During Bruce's station at Malta cholera broke out on the island, the first suspicious cases occurring during 1887. The spread of the disease was rapid and the mortality high, and Bruce, already a marked man, was detailed by the Maltese Government to investigate the epidemic. The result was an official report issued by the chief medical officer to the Government of the island warning the Government of the futility of the quarantine measures relied on, and of the necessity of better sanitation.

In 1889 Bruce was elected F.R.S. and became assistant professor of pathology at Netley, a post which he held until 1894, when he was appointed to serve in South Africa. Shortly afterwards he was instructed to proceed to Zululand at the request of Sir Walter Hely-Hutchinson, the Governor of Natal, to investigate an outbreak of nagana, the trypanosomiasis of cattle. Bruce's record of the circumstances of the discovery will be found in his Croonian lectures delivered before the Royal College of Physicians of London. Bruce and his valiant wife travelled by mule and ox-wagon for a month until they reached Ubombo, where a wattle and daub hut was provided for them as living rooms and laboratory. Bruce was fresh from five years of bacteriological work at Netley; both researchers were energetic and irrepressible, and the discovery followed of a curiously shaped object differing from anything previously found in blood, which could be seen sometimes lying among the blood corpuscles. Experiment proved that these hæmatozoa had a causal connexion with nagana, and further research made it clear that nagana and tse-tse fly disease were identical and due to a trypanosome. Bruce's account of this research is set out in the Croonian lectures,[1] in what constitutes a history of trypanosomiasis in man and domestic animals in Central Africa. The lectures dealt admittedly with but a small part of a subject which even at that date was growing to huge proportions, but they advanced the whole cause of medical research by the demonstration that order could be introduced early into knowledge that had

[1] THE LANCET, June 26th, and July 3rd, 10th, and 17th, 1915.

been accumulating more or less in accidental profusion in many directions, and which was being presented to the medical world in a chaotic manner.

Further work in South Africa included some studies on horse sickness, but at this point came the outbreak of the South African War, in the course of which Bruce greatly distinguished himself during the siege of Ladysmith. His services were recognised by special promotion as lieut.-colonel, while later he was appointed a member of the commission instituted to investigate the circumstances of the outbreak of dysentery and enteric fever in the camps, and a member of the Army Medical Service Advisory Board. On the issue of the report of this commission Bruce was promoted brevet colonel.

Next followed the famous research into sleeping sickness. In 1902 the Royal Society had sent a commission to Uganda to inquire into sleeping sickness, and the observations of Sir Aldo Castellani and his colleagues were seen to be of high significance. In the following year Bruce was sent out by the Society, accompanied by his wife as his assistant, and Dr. David Nabarro. They confirmed and amplified the results of the previous workers, and the association between tse-tse flies, trypanosomes, and sleeping sickness was established, the haunts of the flies were discovered, and the policy of evacuation for the natives was found successful. Bruce received the Royal Medal of the Royal Society, and in 1905 was appointed C.B. Further investigations into trypanosomiasis in Uganda between 1908 and 1910, and in Nyasaland in 1913 and 1914 followed, Bruce being made director of a commission of inquiry under the Colonial Office. The latter investigation had the broad object of ascertaining the connexion between the diseases of wild animals (game), of domestic animals, and of the human subjects, and its findings threw great light on comparative pathology.

Bruce remained in South Africa till shortly before the outbreak of the Great War, and with this came his appointment as commandant at the Royal Army College. During the war and in the subsequent years he rendered great service in collecting and collating medical statistics of the great catastrophe. He was chairman of the War Office committees for the study of tetanus and trench fever, and more than anyone he proved the use of prophylactic injections of antitetanic serum as a means of preventing tetanus in war wounds. That Bruce was well aided, encouraged, and often guided by his wife, Lady Bruce, he was always the first to acknowledge. Rarely has a pioneer in medicine had the company of such a helpmate.

Sir David Bruce, who had received the K.C.B. in 1918, retired in 1923, but for two further years was Colonel Commandant of the R.A.M.C. Elected to the governing body of the Lister Institute as representative of the Royal Society, he acted as chairman of the body from 1916 until his death. His multifarious academic distinctions were awarded from numerous universities, British and foreign, and he was the recipient of many medals of honour. His commanding figure, his somewhat brusque and incisive manner, and his brilliant record will long be remembered by the officers of the R.A.M.C. as one of their greatest glories.

## SIR EUSTACE HILL, O.B.E., M.B., B.Sc. Edin., D.Hy. Durh., F.I.C.

Sir Eustace Hill, who died at his home in Parkstone, Dorset, on Nov. 25th, aged 66 years, had retired to the south coast a few months ago from the position of county health officer for Durham. Born at Winston Green, near Birmingham, Thomas Eustace Hill was son of Dr. Alfred Hill, medical officer of health and public analyst to the city of Birmingham, and younger brother of Prof. A. Bostock Hill, who became county health officer for Warwick. He was educated at King Edward's High School and Queen's College, Birmingham, going on to Edinburgh for his medical studies, where he graduated with honours in 1887, and took a science degree in public health a year later. He had no hesitation about a public health career, and after short periods as deputy medical officer of health for Birmingham, and medical officer for South Shields, he was appointed to the county of Durham, and was elected later to the chair of public health at the university. He became a member of the Departmental Midwives Committee and of the Consultative Council of Medical and Allied Services to the Ministry of Health, and during the war he served in the R.A.M.C., with the rank of lieut.-colonel. In 1922, as did his father and brother before him, he presided over the Society of M.O.H.'s.

It would be no easy task to assess Eustace Hill's services to public health on Tyneside. During his long period of office a good deal of overcrowding was abolished, and the high local infant mortality-rate declined. For much of this it is fair to give Hill credit, for he spared neither time nor trouble in convincing his local authority that public health was good policy, and that public money was wisely spent when it gave a good return in improved health. He took the view that the money spent on sanatoria would have been better devoted to improving the housing of the people, and he was convinced that infant mortality was largely due to environmental causes. He was fully alive, too, to the interdependence of the curative and preventive sides of medicine, and tried with some success to get into touch and to remain in touch with the practitioners of his area. But he was chary of going too fast, and he would rather have seen the surplus population emigrate to wider spaces overseas than have taken steps to limit the birth-rate. His services were recognised last year in the Birthday Honours list.

## ALEX. WATHEN NUTHALL, F.R.C.S.

WE regret to announce the death of Mr. A. W. Nuthall, surgeon to Queen's Hospital and consulting surgeon to the Children's Hospital, Birmingham. Visiting the former, apparently in his usual health, on Nov. 20th, he had a seizure, and died there within a few hours. Mr. Nuthall studied at Queen's and Mason Colleges, Birmingham, where he was Ingleby scholar, and qualified in 1895, taking his F.R.C.S. three years later after special study at St. Bartholomew's Hospital. He served as civil surgeon in the South African War, and on his return was appointed to the surgical side of Queen's Hospital. In 1904 he joined the staff of the Children's Hospital, with which he was associated as surgeon for a period of 25 years, and as a member of the governing body being responsible largely for its present development. Holding a commission in the Royal Warwickshire Regiment, he joined up as a combatant officer in 1914, was transferred later to the R.A.M.C., and spent nearly three years at Salonica. His writings were few and to the point. He was particularly interested in pneumococcal infections, choosing this for the subject of his Ingleby lectures in 1926. Mr. Nuthall, who was 58 years of age, is survived by three children, his wife having predeceased him.

Dr. JOHN THOMAS COLLIER, who died at Hove on Nov. 17th, in his 77th year, was formerly a valued citizen of Lincoln, where he practised for many years. After an exceptionally successful career at Queen's University, Belfast, where he graduated as M.D. in 1878, he went to Lincoln in 1880 as partner to Dr. Thomas Sympson, the firm being later joined by Dr. Mansel Sympson. In addition to professional work which gave scope for his qualities of charm and friendship, he was long a city magistrate and served on the city council, where he was always interested in improvement of housing and sanitary conditions. His sister, Dr. Georgina Collier, married Dr. Joseph Harvey, of Merton Park, and the family included two medical brothers, Dr. S. R. Collier, of Wimbledon, and the late Dr. R. J. Collier, who died in 1920.

Dr. F. W. COLLINGWOOD, who died in London on Nov. 23rd, in his 69th year, was a forceful critic of medical standards and practice. Born in London in 1862 and educated at the London Hospital, from which he qualified as M.R.C.S. Eng. in 1886, he took a resident appointment at the Torbay Hospital and had some surgical experience at the Great Western Railway Works, Swindon, before entering the Royal Naval Medical Service. Still in early life he retired from the Navy, and after taking part in Prof. Sola's expedition to the South Seas he became a general practitioner in South-east London, specialising on the medico-legal aspects of medicine. Amongst other appointments he held that of anæsthetist to the Samaritan Hospital for Women and National Dental Hospital, and medical officer to the Lewisham Military Hospital. He was a member of Lincoln's Inn and a Liveryman of the City of London.

# MEDICAL NEWS

## University of London.

At recent examinations the following candidates were successful:—

D.P.M.

*With Special Knowledge of Psychiatry.*—Giurdham, Arthur; Harrowes, W. McC.; and Weber, H. M.

## Pharmaceutical Society of Great Britain.

At a meeting of this society at 17, Bloomsbury-square, London, W.C., at 8.30 P.M. on Tuesday, Dec. 8th, Mr. M. D. Perrins, of the Home Office, will give an address on the International Illicit Traffic in Drugs.

## Week-end Course on Disorders of Childhood.

A post-graduate course on Common Disorders of Childhood and their Treatment will be given at the Hospital for Sick Children, Great Ormond-street, London, W.C., on Saturday, Dec. 12th (9 A.M. to 4 P.M.), and Sunday, the 13th (10 A.M. to noon). It is intended primarily for those in general practice, and there will be no fee for attendance. Those intending to be present should notify the dean of the medical school at the hospital as soon as possible.

## Fellowship of Medicine and Post-Graduate Medical Association.

The last lecture of the series on Prognosis will be given by Mr. Cecil Joll, at 4.0 P.M. on Dec. 9th, at the rooms of the Medical Society of London, 11, Chandos-street. His subject is Goitre, with special reference to Thyrotoxicosis. Free clinical demonstrations will be given at 6.0 P.M. on Dec. 7th at St. John's Hospital, Leicester-square, by Dr. S. E. Dore, and at 3.30 P.M. on Dec. 8th at the Royal Northern Hospital by Mr. Hamilton Bailey. A course of lectures on endocrinology will be given by Dr. W. Langdon Brown at the rooms of the Medical Society of London at 8.30 P.M. on Monday and Fridays from Jan. 11th to 29th. A list of special courses in 1932 is now ready. Other syllabuses and information may be had from the secretary of the association at 1, Wimpole-street, W.1.

## Geneva University Club.

This club has been founded for students and teachers from the University of Geneva who are in England. A dinner will be held on Wednesday, Dec. 16th, at 7.45 P.M. Particulars may be had from the secretary, Dr. Lina Potter, 31, Highbury-place, N.5.

## International Association for the Prevention of Blindness.

The general assembly of this association was held in Paris on Nov. 14th. Prof. de Lapersonne, from the chair, spoke of the recent formation of national committees in the Argentine, Belgium, Brazil, France, Germany, Hungary, Italy, Mexico, Portugal, and Spain. Dr. Humbert, secretary general of the association, announced the establishment, in the near future, of a permanent secretariat. Dr. Coutela submitted a report on Present Legislation and Prophylaxis of Industrial Eye Accidents, and Mr. Bernard Cridland one on the Value of a Complete Investigation of the Causes of Blindness as a First Step in Prevention. He advocated uniform statistics on the causes of blindness in the different countries, and this proposal was endorsed.

## International Union against Tuberculosis.

As we have already announced, the next conference of this organisation will be held at The Hague and Amsterdam from Sept. 7th to 9th, 1932, under the chairmanship of Prof. Nolen. The principal subjects of discussion will be (1) the Relationship between Allergy and Immunity, (2) Gold-therapy, and (3) After-care Schemes for the Tuberculous. Speakers from this country will include Prof. S. Lyle Cummins, Dr. L. S. T. Burrell, and Dr. Harley Williams. Further particulars may be had from the secretary of the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock-square, London, W.C. 1.

## Australian and New Zealand Medical Association in England.

The winter dinner of this association will be held at the Trocadero Restaurant, London, on Friday, Dec. 11th, at 7.45 for 8 P.M., with Mr. T. P. Dunhill in the chair. Sir John Thomson-Walker and Prof. William Wright will be the official guests. All medical visitors from Australia and New Zealand, whether already members of the association or not, are invited to be present. The hon. secretaries, Mr. E. T. C. Milligan and Mr. Philip J. Jory, may be addressed at 25, Queen Anne-street, W.1.

## Pathology Department at Bolton.

Last week Mrs. W. E. Walker opened a pathological department at Bolton Infirmary, the cost of which, nearly £10,000, has been defrayed by the family of the late Colonel Walker. It includes a large laboratory with working and sterilising rooms, a museum for medical exhibits, and a small chapel in the mortuary. The department is now making more than 2000 investigations a year.

## New Liverpool Radium Institute.

Lord Derby last week laid the foundation-stone of the new Liverpool Radium Institute and Hospital for Cancer, which is estimated to cost £70,000. There is enough money in hand to justify beginning the work, and it is hoped that, as it proceeds, the flow of help will enable it to be completed without interruption. The hospital receives patients not only from Merseyside, but from West Lancashire, West Cheshire, South Westmorland, North Wales, and the Isle of Man.

## New Heart Department.

A new building specially designed for the heart department was opened at the London Hospital last week. A tablet recording the fact that it is a memorial to the late Sir James Mackenzie, F.R.S., was unveiled by Mrs. C. W. Charrington, who declared the department open. Dr. John Parkinson, physician in charge of the department, reminded the assembly that the London was the first general hospital in the world to arrange for special attention to this branch of medicine.


**THE LANCET: SUBSCRIPTION RATES.**

| | | |
|---|---|---|
| INLAND | One Year | £2 2 0 |
| | Six Months | 1 1 0 |
| | Three Months | 0 10 6 |
| ABROAD | One Year | 2 10 0 |
| | Six Months | 1 5 0 |
| | Three Months | 0 12 6 |

# PARLIAMENTARY INTELLIGENCE

## NOTES ON CURRENT TOPICS.

THE EXPIRING LAWS BILL was passed through all its stages in the House of Lords on Thursday, Nov. 26th.

## NATIONAL HEALTH INSURANCE.

On Wednesday, Nov. 25th, in the House of Commons Sir E. HILTON YOUNG, Minister of Health, moved the second reading of the National Health Insurance (Prolongation of Insurance) Bill. He explained that the Bill repealed the measure introduced a year ago, and was for the purpose of prolonging in health insurance those who were coming out of it by reason of unemployment at the end of 1931. It preserved medical and cash benefits, and its duration was to Dec. 31st, 1932. Assuming a basis of 70,000 persons prolonged in insurance by the Bill, the cost to the Exchequer would be £95,000 in respect of contributions and £15,000 in respect of grants. The Bill was proposed as a matter of urgency.

The Bill was read a second time.

On Thursday, Nov. 26th, the Bill passed through Committee, and on Friday, the 27th, it was read the third time.

## IMPORTS OF FRESH FRUIT, VEGETABLES, AND FLOWERS.

### NEW RESTRICTIVE DUTIES.

On Monday, Nov. 30th, the House of Commons went into Committee of Ways and Means on a resolution on which a Bill is to be founded authorising the imposition of customs duties up to 100 per cent. on certain fruits, vegetables, and horticultural products imported from foreign countries. The articles to which the duties may be applied by Orders issued by the Minister of Agriculture include the following :—

Fresh fruits: Cherries, currants, gooseberries, grapes (hothouse), plums, strawberries.

Fresh vegetables: Asparagus, green beans, broccoli and cauliflowers, carrots, chicory (salad), cucumbers, endive, lettuce, mushrooms, peas (green), potatoes (new), tomatoes, turnips.

Flowers, &c.: Cut flowers, plants in flower, flowers attached to bulbs, foliage, bulbs, rose trees.

Sir JOHN GILMOUR (Minister of Agriculture), in moving the resolution, said that these emergency powers were being taken by the Government as part of their policy to redress the balance of trade, and as the first instalment of their proposals for assisting British agriculture. It was hoped that the result would be to encourage market gardeners, smallholders, and allotment holders to increase the home production of food. The luxury articles which it was proposed to tax could not be described as the food of the people, and in present circumstances it would be well to shut them out. The estimated annual value of the fruit, vegetables, and flowers which would be subject to these emergency duties was £13,000,000, of which early luxuries accounted for between £7,000,000 and £8,000,000. Dominion products would be exempt from the proposed duties.

The Opposition criticised the proposals as a small part of a larger policy which, it was alleged, the Government intended to pursue for the taxation of food in defiance of pledges given during the General Election.

Major MILNER said that clearly the prices of all foodstuffs dealt with in these proposed Orders must go up. Many of them were not luxuries or non-essentials. Tomatoes, for instance, were something in the nature of a necessity to many poor people in the East End of London and elsewhere. At present they were sold at low prices and were a most valuable food, and were recommended by the medical profession because of the large amount of vitamins which they contained. It was a remarkable fact that this resolution left the field open for imports of any quantity of fruit pulp, dried fruits, vegetables, or bottled or tinned stuffs.

### FRESH FRUIT AND VITALITY.

Dr. SALTER said that there was a really permanent shortage of soft fruits on sale in the industrial areas at any reasonable price. That was partly due to bad and disorganised marketing arrangements. It was also due to the increase in jam making, the manufacture of fruit jelly, and increased canning and bottling. If the Government taxed these articles they would put them outside the reach of working people altogether. Many members of the Opposition did not object to taxing articles of purely luxury consumption, but they did object very strongly to making dearer the essential articles of consumption of the working people. There had been an increase in recent years in the consumption of fruit, fish, and vegetables by the working classes, and that had been accompanied by an improved standard of health, and a lower death-rate. Directly the drop in wages became marked, however, there had been a corresponding fall in the consumption of these other articles of diet, and an increase in the consumption of bread. Bread consumption had been rising steadily. There was no doubt that even now a great majority of the workers in the poorer districts did not succeed in getting sufficient fruit and vegetables to keep them up to a standard of first-class vitality, or up to the standard of the better-paid classes. He need not dwell on the physiological value of fruit and vegetables in a general diet. As a medical man who had practised for 30 years in an industrial neighbourhood he had personally observed the steady improvement in health and vigour—mental and physical—of the people as they learned to, and were able to, improve the range of their dietary, and to include more fruit and vegetables. He looked with the gravest alarm on any measure which would have the effect of restricting the diet of the people in this direction which would result from making fruit and vegetables dearer.

After further debate,

The resolution was agreed to by 366 votes to 49.

## HOUSE OF COMMONS.

WEDNESDAY, NOV. 25TH.

### Income-tax Allowances.

Sir FRANK SANDERSON asked the Chancellor of the Exchequer whether, in view of the fact that, under the provisions of the Budget introduced in September last for purposes of income-tax assessment, the personal allowance for a married man had been reduced by £75 whereas the personal allowance for a single man had been reduced by £35 only, he would consider in his next Budget amending the reduction of allowances imposed upon a married man to an amount not exceeding £70, in order to bring it into line with the reduction of £35 for a single man.—Major ELLIOTT (Financial Secretary to the Treasury) replied: The question raised by my hon. friend would be one for consideration in connexion with next year's Budget, as to which, as he will appreciate, I cannot make any anticipatory statement.

### National Health Insurance.

Mr. GORDON MACDONALD asked the Minister of Health the number of insured persons under the National Health Insurance Act on Dec. 31st, 1913, and also on the latest date when the information was available, specifying the number of women in each case.—Sir E. HILTON YOUNG replied: 13,383,000 persons, 3,961,000 of whom were women, were insured for National Health Insurance purposes on Dec. 31st, 1913. On Dec. 31st, 1930, there were 17,012,000 persons insured for National Health Insurance purposes, of whom 5,757,000 were women. I would point out that in December, 1913, employed persons remained in insurance and entitled to the ordinary National Health Insurance benefits until they attained the age of 70, but as

from Jan. 2nd, 1928, this limiting age was reduced to 65, as a result of the introduction of Contributory Old Age Pensions at age 65.

THURSDAY, NOV. 26TH.

### Government and Factory Legislation.

Major NATHAN asked the Home Secretary whether he proposed to introduce a Bill for the consolidation or amendment of the law relating to factories.—Sir HERBERT SAMUEL replied: This question has not yet been considered by the Government, and I regret that I am not in a position to make any statement.

### Children's Bill.

Sir VIVIAN HENDERSON asked the Home Secretary whether he proposed to introduce a Children's Bill next spring.—Sir HERBERT SAMUEL replied: The Government hope to be able to introduce a Children Bill in the course of the present session.

### The Death Penalty.

Mr. MANDER asked the Home Secretary if he was able to make any statement with reference to the policy of the Government on the abolition of the death penalty.—Sir HERBERT SAMUEL replied: I am not in a position to make any statement at the present time.

### Census Returns and Housing.

Major NATHAN asked the Minister of Health when the census particulars as to housing would be published; and when the publication of the report on the census returns would be completed.—Sir E. HILTON YOUNG replied: As hitherto, the census housing statistics will be included in the county part series of the substantive census reports. It is anticipated that this series will begin to issue about the middle of next year, and will be followed by a number of volumes dealing with particular subjects; but it cannot at present be stated when the publication of all census reports will be completed.

### Overcrowding in East End of London.

Major NATHAN asked the Minister of Health whether he was aware of the increase in overcrowding in the East End of London caused by the diversion of dwelling-houses to industrial purposes; and whether he proposed to take any action to prevent such diversion in the future.—Sir E. HILTON YOUNG replied: I am aware that a number of dwellings have been converted to industrial use. Control over development of this kind can best be secured by legislation for extending planning powers to build areas, and the question of such legislation is under consideration.

Lieut.-Colonel FREMANTLE asked the Minister of Health if he would consider, as promised by his predecessor on July 30th last, some way of amalgamating the returns compiled with regard to houses occupied, erected, or reconditioned, and the houses and populations dealt with in clearance and improvement areas during the year, and of issuing the result in such a way as to reduce the need for frequent questions in Parliament and to provide the most useful guide to progress made and needed.—Sir E. HILTON YOUNG replied: I will certainly consider this question, and shall be glad if it is possible to secure my hon. and gallant friend's objects in the way proposed.

### Local Authorities and Housing Schemes.

Mr. HARRIS asked the Minister of Health whether his department had held up any housing schemes submitted by local authorities since Oct. 1st on the grounds of economy; if so, what schemes were affected; and if there was any curtailment in the housing programmes of local authorities as a result of the economy policy of the Government.—Sir E. HILTON YOUNG replied: There has been no instance of refusal to approve housing proposals on the ground of economy, but in present circumstances I have found it necessary to discuss with local authorities in certain cases some modification of their proposals with a view to securing the provision of a type of house which can be let at a lower rent than has been usual in the past. I have no information showing that local authorities have made any substantial curtailment of their programmes.

### Rural Housing.

Mr. HARRIS asked the Minister of Health what progress had been made under the powers under the Housing (Rural Authorities) Act, 1931; whether the committee appointed thereunder had held any meetings; whether any schemes had been submitted to him for approval; and, if so, whether they had been approved, modified, or turned down. Captain ERSKINE-BOLST and Sir WILLIAM JENKINS asked questions on the same subject.—Sir E. HILTON YOUNG replied: The committee appointed under the Act of 1931 held a meeting in September. Applications have been received from 136 rural district councils in respect of 7003 houses and are under investigation, but they have not yet been considered by the committee, and none has yet been approved.

### Slum Clearance.

Mr. SALT asked the Minister of Health the number of houses in England and Wales which were estimated to be dealt with under slum clearance schemes as part of the Housing Act, 1930, during the five-year period commencing Jan. 1st, 1931; and how many houses had been demolished under this scheme up to Oct. 31st last or the latest available date.—Sir E. HILTON YOUNG replied: The estimate made by the larger urban authorities provided for the demolition of 57,000 such houses. The number actually demolished up to Sept. 30th last was 201.

### Local Authorities and Health Services.

Mr. ANEURIN BEVAN asked the Minister of Health whether any local authorities had restricted their health services since the end of August; and, if so, in what direction have the economies been effected.—Sir E. HILTON YOUNG replied: I have no complete information as to the action which has been taken by local authorities generally after consideration of the circular on the review of local expenditure, which was issued in September last, but the information at my disposal does not suggest that local authorities have restricted the provision already made under their existing health services.

### Conveyance of Hospital Patients.

Mr. MCGOVERN asked the Minister of Health whether, as it was the practice of health authorities owning infectious diseases hospitals to convey patients from their homes to the hospitals, he would issue a circular recommending local authorities that they should arrange for patients to be conveyed to their homes on discharge.—Sir E. HILTON YOUNG replied: Local authorities have power to arrange for the conveyance of persons to their homes on discharge from hospital, and I understand that many authorities already use this power. But it is a matter entirely within the discretion of the local authorities, a discretion with which there are no grounds for interference.

Mr. MCGOVERN: In view of the fact that it is a health problem, and that there is a considerable danger of these children on being discharged contracting chills, and that there is also the danger of infecting other children in public conveyances on the way home, will the right hon. gentleman consider the advisability of urging the local authorities to make special provision in these cases?

Sir E. HILTON YOUNG: These are matters pertinent for the consideration of the local authorities, and I do not think that there is any evidence of need for my interference with their discretion.

MONDAY, NOV. 30TH.

### Child Marriage in India.

Miss RATHBONE asked the Secretary of State for India the result of the inquiries which his predecessor undertook to make last summer as to whether, and to what extent, the provincial governments were carrying into effect the administrative measures recommended by the Joshi Committee two years ago as being necessary to the successful enforcement of the Act for the restraint of child marriage.—Sir S. HOARE replied: I have not received any report on the subject since I took office, but I will make inquiries.

### Cost of Pensions Administration.

Mr. JOEL asked the Minister of Pensions the cost of administering his department during each of the last five years; the numbers of final awards now in existence; and the numbers of new cases submitted to it in each of the last three years, and the number of pensions of any sort which had been granted as a result.—Major TRYON replied: The cost of administration of my department for each of the five years ending on March 31st next is as follows:—1927–28, £1,508,000; 1928–29, £1,290,000; 1929–30, £1,295,000; 1930–31, £1,221,000; 1931–32, £1,039,500 (estimated). The cost of administration for the current year will be equivalent to 5*s.* 1*d.* for every £ of expenditure on pensions and other benefits, and may be compared with a corresponding cost of 6*s.* 2*d.* per £ in 1927–28, and with the maximum figure of 1*s.* 3*d.* per £ in 1920–21. At the end of September last 430,000 final awards of disability pension or retired pay were in payment. The number of fresh applications of all kinds submitted to the Ministry can only be given with completeness for the last two years. For the year ended September, 1930, fresh applications from all classes of claimant, including disabled officers and men, widows and dependants, numbered 24,600, and for the year ended September last 13,600. Awards of pension

or other grants were made in 3570 cases in the former year, and in 3170 in the latter.

### Disability Pensions.

Mr. FULLER asked the Minister of Pensions the number of ex-Service men, on the latest available date, who are drawing disability pensions on account of the Great War, and the weekly cost to the State.—Major TRYON replied: At the end of September last 478,000 ex-Service officers and men were drawing disability pensions, of which the total weekly cost was about £490,000.

[In answer to a supplementary question by Captain CROOKSHANK, Major TRYON said that the total expenditure on war pensions since 1914 was £1,015,000,000.]

### Quality of Foreign Imported Milk.

Major BRAITHWAITE asked the Minister of Agriculture whether his attention had been called to the importation of fresh milk from Denmark and Holland; whether such milk was accompanied by any certificate that it was produced under conditions comparable to those enforced in this country under the Milk and Dairies Order; what steps were being taken, having regard to the existence of the disease in Denmark and Holland, to ascertain whether such imports contained the virus of foot-and-mouth disease and to eliminate the risk of the disease being spread in this country; and what action was being taken to require the distributors of such milk to disclose its origin to consumers.—Sir J. GILMOUR replied: My attention has been called to this matter. Imported milk is not required to be accompanied by a certificate to the effect mentioned in the question; but the Public Health (Imported Milk) Regulations made by the Ministry of Health in 1926 require the registration of all consignees of milk—other than condensed or dried milk—from abroad, and further lay down a standard of hygienic quality to which all such milk must conform. As regards the danger of introducing the virus of foot-and-mouth disease, I am informed that under the Danish law all liquid milk exported must have been pasteurised, and that although such pasteurisation is not absolutely required by the Dutch law, it is the practice in Holland to pasteurise milk intended for exportation to this country; and I understand that imported fresh milk is again pasteurised in this country before it is distributed. The process of pasteurisation is fatal to the virus of foot-and-mouth disease. In reply to the last part of the question, no Marking Order applicable to imported milk has been made under the Merchandise Marks Act, 1926, but the question of marking is to some extent covered by Section 1 of that Act.

### The Price of Milk.

Sir PHILIP DAWSON asked the Minister of Agriculture whether his attention had been called to the difference in the price which the farmers received for their milk from the milk combine in London and the price at which it was sold to the consumer; and whether, in view of the combine's proposal to raise the price of milk to the consumer, he would take any action to investigate the matter under the terms of the Foodstuffs (Prevention of Exploitation) Act.—Mr. HORE-BELISHA (Parliamentary Secretary to the Board of Trade) replied: The Food Council have been in communication with the Permanent Joint Milk Committee of producers and distributors, and understand that the increase in price of 1*d.* per quart which it is proposed to charge during December and January will be paid to the producers.

### Ventilation of the Division Lobby.

Sir WILLIAM DAVISON asked the First Commissioner of Works if he would arrange for the better ventilation of the division lobby when used by supporters of the Government at the time of the taking of a division, seeing that some 400 Members were now often confined for nearly 20 minutes in the small space of the division lobby, with no open windows and little or no ventilation.—Mr. ORMSBY-GORE replied: I fear that little improvement in the ventilation of the division lobbies is possible, except at considerable expense. In the summer months the windows can be left open, but in winter this practice would unduly lower the temperature for those hon. Members using the lobbies for writing letters between divisions. I understand that the average time taken for Members to pass through the Government lobby during the last fortnight is about 14 minutes.

### Hospital Sweepstakes.

Mr. WHYTE asked the Home Secretary if, in view of the failure of the efforts to prevent the people in Great Britain participating in the Irish sweepstakes, he would consider the legalising of sweepstakes under proper safeguards as a means of assisting the hospitals of this country.—Sir H. SAMUEL replied: Apart from other considerations, no representations have been received by my predecessors or myself which would indicate that the hospital authorities desire a measure of this character. On the contrary, I understand that in June of this year the British Hospitals' Association passed a resolution to the effect that "the Association is not in favour of any amendment of the law affecting public sweepstakes which purports to be for the benefit of voluntary hospitals."

Mr. WHYTE asked if the Home Secretary was aware that through the agency of legalised sweepstakes all the hospitals in the Irish Free State were in a better position to engage in research work and to give their patients efficient service, while in this country we were in a lamentable position.

Viscount EDNAM asked whether any representations had been made to the Irish Free State that English hospitals should participate in the proceeds of the sweepstakes.

Sir H. SAMUEL replied in the negative.

Sir F. HALL asked whether, in the event of the Hospitals' Committee changing its attitude, the Home Secretary would consider the introduction of legislation to enable sweepstakes to be held here.

No reply was given to this question.

### Marking of Foreign Butter.

Sir WILLIAM DAVISON asked the Minister of Agriculture whether any steps could be taken to expedite the coming into operation of the Order in Council under the Merchandise Marks Act, 1926, with regard to the labelling of foreign butter with a description of origin, seeing that the order made a short time ago was not to come into operation till next May, and meanwhile it was impossible for the public to know whether they were buying British or foreign butter or a blend of both.—Sir J. GILMOUR replied: The period during which a Draft Order in Council under the Merchandise Marks Act, 1926, has to lie before Parliament and the minimum period which must subsequently elapse before the Order becomes operative, are fixed by Statute, and I have therefore no power to take such steps as those suggested by my hon. friend.

In answer to a further question by Sir WILLIAM DAVISON, who asked if the right hon. gentleman was aware that 20 children in the South of England were recently seized with illness after eating butter of unknown origin, Sir J. GILMOUR said that that was a matter for the Ministry of Health.

TUESDAY, DEC. 1ST.

### Small-pox Cases.

Mr. GROVES asked the Minister of Health whether any deaths occurred amongst the small-pox cases quoted in Columns A, B, C, and D of the report of the Chief Medical Officer for 1930; if so, what was the number and the ages in each class respectively; and whether he would arrange for the deaths, if any, to be included in this table in future reports.—Sir E. HILTON YOUNG replied: Sixteen deaths occurred among the small-pox cases tabulated on page 49 of the report of the Chief Medical Officer of my department for the year 1930. These deaths, following the classification adopted in the tabular statement, were distributed as follows:—

Col. A (successfully vaccinated): 5 deaths, of persons aged 46, 47, 56, 66, and 77 years respectively.

Col. B (successfully revaccinated): no deaths.

Col. C (unvaccinated): 8 deaths, of persons aged 3 weeks, 4 weeks, 7 weeks, 8 months, 8 months, 10 years, 11 years, and 13 years respectively.

Col. D (vaccinal condition doubtful): 3 deaths, of persons aged 45, 58, and 59 years respectively.

As regards the last part of the question, as the table referred to relates to certain districts only, and the total number of deaths from small-pox during the year is given elsewhere in the report, I do not think it is necessary to make the suggested addition to the table.

### Income-tax Allowances.

Sir MERVYN MANNINGHAM-BULLER asked the Chancellor of the Exchequer whether he would consider the possibility of incorporating in the Budget of 1932 a provision by which a man with an invalid wife, whom he had to support, might claim a housekeeper's allowance for income-tax purposes.—Major ELLIOT (Financial Secretary to the Treasury) replied: All relevant matters will be taken into account in framing the Budget statement. My hon. friend will not, however, I am sure, expect me to anticipate that statement.

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HOSPITAL FOOD AT WINCHESTER.—During the first nine months of the present year the cost of food per head per day at the Hampshire County Hospital, Winchester, has been reduced to 11*d.* per day. This is a saving at the rate of £1 1*s.* 4*d.* per annum, and is partly due to the fall in the price of commodities. It is officially stated that the patients were supplied with English beef "and everything of the best."

# Medical Diary

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Dec. 8th.—8.30 P.M., PSYCHIATRY. Dr. Aubrey J. Lewis: The Appreciation of Time in Mental Disorder.

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 4.30 P.M.) Mr. C. P. G. Wakeley: 1. Sarcoma of Orbit. Mr. A. Rocyn Jones: 2. Bilateral Snapping Knee. Mr. Rodney Maingot: 3. Papilloma of Face. 4. Cavernous Nævus of Leg. Dr. Bernard Myers: 5. Gaucher's Disease. Dr. Terence East: 6. Hodgkin's Disease. Dr. E. Stolkind: 7. Raynaud's Disease, Scleroderma and Paralysis Agitans. Dr. Dorothy Hare: 8. Diverticulum of Duodenum. Dr. Parsons-Smith: 9. Aortic Aneurysm and Bronchiectasis. Dr. Bernard Schlesinger: 10. Congenital Cerebellar Ataxia. Dr. R. C. Lightwood: 11. Lymphadenoma with Paraplegia. Other cases will be shown. 5 P.M., OPHTHALMOLOGY. Clinical Meeting at the Royal Eye Hospital, St. George's-circus, S.E. Tea at 4.30 P.M. Cases will be shown.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Dec. 10th.—8.15 P.M. (in the London School of Hygiene and Tropical Medicine, Keppel-street, W.C.), Dr. G. W. M. Findlay: Rift Valley Fever.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Dec. 10th.—8.30 P.M., Dr. Crookshank: Physical Findings in Psycho-Neurosis.

BIOCHEMICAL SOCIETY.

FRIDAY, Dec. 11th.—3.30 P.M. (at the London School of Hygiene and Tropical Medicine, Keppel-street, W.C.). Communications and Demonstrations.

OPTICAL SOCIETY.

THURSDAY, Dec. 10th.—7.30 P.M. (at the Imperial College of Science and Technology, South Kensington, S.W.). Dr. F. Campbell Smith and Dr. Ensor R. Holiday: A New Photo-Electric Spectrophotometer. Also other exhibits.

PADDINGTON MEDICAL SOCIETY.

TUESDAY, Dec. 8th.—9 P.M. (at the Great Western Royal Hotel, W.). Mr. W. McAdam Eccles: Pitfalls in the Anatomy, Diagnosis, and Treatment of Hernia.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

FRIDAY, Dec. 11th.—8.45 P.M. (at the Miller Hospital, Greenwich, S.E.), Sir William Willcox: Recent Researches into the Causation of Chronic Rheumatism. (Purvis oration.)

HARVEIAN SOCIETY.

THURSDAY, Dec. 10th.—8.30 P.M. (at Paddington Town Hall), Buckston Browne Prizewinner: Treatment of Shock by Intravenous Therapy.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

THURSDAY, Dec. 10th.—5 P.M., Col. W. P. MacArthur: The Surgeon and Old-time Plague. (Thomas Vicary lecture.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 7th, to SATURDAY, Dec. 12th.—INFANTS HOSPITAL, Vincent-square, S.W. Special post-graduate course in Diseases of Infants occupying each afternoon from 2 to 5 P.M., with demonstrations and lectures.—LONDON LOCK HOSPITAL, Dean-street, W. Post-graduate Course in Venereal Disease. Every afternoon.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Wed. at 4 P.M., free lecture by Mr. Cecil A. Joll on Goitre, with special reference to Thyrotoxicosis.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. Mond. Free demonstration in O.P. Dept., by Dr. S. E. Dore, at 6 P.M.—ROYAL NORTHERN HOSPITAL, Holloway-road, N. Tues., 3.30 P.M. Free demonstration in Clinical Lecture room by Mr. Hamilton Bailey. Further particulars from the Fellowship of Medicine.

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Dec. 10th.—4.30 P.M., Dr. C. Dukes: Pathology of Intestinal Obstruction.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Dec. 8th.—3.15 P.M., Dr. W. R. Reynell: Sexual Neuroses.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Dec. 9th.—4 P.M., Maj. M. Sinclair: Fractures of the Lower Limb Bones. (Cinematograph lecture demonstrating Bohler methods of treatment.)

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Dec. 9th.—4 P.M., Dr. R. Lane: Pernicious Anæmia.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Dec. 9th.—4.30 P.M., Mr. C. H. Mills: Urological Cases.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Dec. 11th.—4 P.M., Mr. N. Asherson: Chronic Otorrhœa.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Dec. 8th.—5 P.M., Dr. A. C. Roxburgh: Eruptions due to Physical Agents.

THURSDAY.—5 P.M., Dr. J. E. M. Wigley: Pemphigus and Allied Eruptions.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.

THURSDAY, Dec. 10th.—9 P.M., Dr. W. Sheldon: Diagnosis and Treatment of Asthma in Children.

NATIONAL COUNCIL FOR MENTAL HYGIENE.

THURSDAY, Dec. 10th.—5.15 P.M. (at 11, Chandos-street, W.) Dr. Ernest Jones: Psycho-Analysis.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Dec. 9th.—4 P.M., Prof. E. L. Collis: Health of the Industrial Worker.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Dec. 8th.—4.15 P.M., Mr. W. H. Hey: Recent Advances in Surgery.

FRIDAY.—4.15 P.M., Dr. F. E. Tylecote: Demonstration of Medical Cases.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Dec. 10th.—11 A.M., Mr. P. G. McEvedy: Clinical Demonstration. 4.15 P.M., Dr. Arnold Renshaw: Recent Advances in Laboratory Methods

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.

WEDNESDAY, Dec. 9th.—4.30 P.M., Dr. H. Morris: Carcinoma of the Stomach. (With demonstration of Radiograms.)

UNIVERSITY OF SHEFFIELD.

FRIDAY, Dec. 11th.—3.30 P.M. (at the Royal Infirmary), Dr. A. W. Fawcett: Carcinoma of the Breast.

VICTORIA INFIRMARY, Glasgow.

WEDNESDAY, Dec. 9th.—4.15 P.M., Dr. Ivy McKenzie: Medical Cases.

FACULTY HALL, St. Vincent-street, Glasgow.

TUESDAY, Dec. 8th.—4 P.M., Dr. A. B. Kelly: Significance of Signs and Symptoms in Upper Food Passages.

# Appointments

HOGG, W. A., M.B., B.S. Durh., has been appointed Divisional Surgeon to the Darlington Division of the St. John's Ambulance Brigade.

# Births, Marriages, and Deaths

## BIRTHS.

BRADLEY.—On Nov. 25th, at Stratton on the Fosse, the wife of Dr. W. H. Bradley, Downside School, of a daughter.

CRABTREE.—On Nov. 10th, at Wentworth House, Ilfracombe, the wife of J. B. Crabtree, F.R.C.S. Eng., a daughter.

CROSSMAN.—On Nov. 28th, at White's Hill, Hambrook, Glos., the wife of Dr. F. W. Crossman, of a daughter.

MCGARVEY.—On Nov. 24th, at Westfield, Wells, Somerset, the wife of Dr. McGarvey, of a daughter.

MOORE.—On Nov. 22nd, the wife of Dr. D. L. H. Moore, of Alma House, Exmouth, of a son.

POWELL.—On Nov. 24th, at Earlsridge, Redhill, Surrey, the wife of Dr. Ronald R. Powell, of a son.

SMITH.—On Nov. 24th, the wife of K. Shirley Smith, M.D., M.R.C.P., Central-mansions, N.W., of a daughter.

## MARRIAGES.

HEWITT—HORN.—On Nov. 21st, at Holy Trinity, Brompton Parish Church, London, Edward John Campbell Hewitt M.B., Ch.B. Edin., D.P.M. Lond., Napsbury, St. Albans, to Joyce Russell, eldest daughter of Mr. and Mrs. W. H. Horn, Luton, Bedfordshire.

## DEATHS.

BRUCE.—On Nov. 27th, at Artillery-mansions, Westminster, S.W., Maj.-General Sir David Bruce, K.C.B., LL.D., F.R.S., late R.A.M.C.

CHARMAN.—On Nov. 26th, after a short illness, Francis Walden Charman, M.B. Lond., of Cross Deep, Twickenham, aged 34.

CLAREMONT.—On Nov. 23rd, suddenly at Portsdown-avenue, Golders Green, Louis Bennett Claremont, M.R.C.S., L.R.C.P., aged 71 years.

CLARKE.—On Nov. 24th, at Bolton-street, London, W., John Henry Clarke, M.D., Consulting Physician to the London Homœopathic Hospital, in his 79th year.

DENHAM.—On Nov. 24th, at Greystoke, Albemarle-road, Beckenham, Norman Denham, L.D.S. Eng.

JOHNSON.—On Nov. 11th, at Navarino, Walton-on-Naze, Edward S. Johnson, L.M.S.S.A., aged 63.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.*

# NOTES, COMMENTS, AND ABSTRACTS

## THE PHYSIQUE OF YOUNG LONDONERS.

SOME COMPARATIVE NOTES.

BY H. H. BASHFORD, M.D., B.S. LOND.,
MEDICAL DEPARTMENT, GENERAL POST OFFICE.

FOR many years the General Post Office has been one of the largest employers of juvenile labour in London. With regard to height and weight its standards of requirement have not materially changed and it has consistently drawn the majority of its boy messengers from the so-called working-class districts of the metropolis. It seems not unreasonable to suppose therefore that these boys may be regarded, in respect of their height and weight, as a fairly accurate index of the general physique of a very large group of young Londoners. For this reason it has been thought that the following brief notes may be of some general interest.

### COMPARISON WITH A QUARTER OF A CENTURY AGO.

During a recent research into the problems of growth from an industrial standpoint, I was able to compare a consecutive series of 200 boys of 16 examined between the years 1929–1931 with a similar consecutive series of 200 boys of 16, drawn from the same class and examined under the same conditions between the years 1905 and 1908—i.e., 23 years ago.

*Average height (ht.) and weight (wt.) of 200 boys of 16 examined 23 years ago compared with 200 boys of 16 at the present day.*

| *23 years ago.* | | *Present day.* | |
|---|---|---|---|
| Ht. | Wt. | Ht. | Wt. |
| 5 ft. 5 in. | 8 st. 3 lb. | 5 ft. 6½ in. | 9 st. 5 lb. |

In all cases measurements were taken in indoor clothes or tunics, without belts and boots.

From this it will be seen that the 200 boys of to-day weighed upon the average 1 st. 2 lb. more than their 200 predecessors of 23 years ago and were 1½ in. taller. Of the earlier group only three scaled 11 st. or over; of the present-day group 22 scaled 11 st. or over.

Turning to the girls, a comparison of a consecutive series of 200 girls of 16 examined between 1927–1930 with a similar consecutive series of 200 girls of 16 examined between 1902–1905—i.e., 25 years ago—gave the following results.

*Average height and weight of 200 girls of 16 examined 25 years ago compared with 200 girls of 16 at the present day.*

| *25 years ago.* | | *Present day.* | |
|---|---|---|---|
| Ht. | Wt. | Ht. | Wt. |
| 5 ft. 2½ in. | 7 st. 12 lb. | 5 ft. 3½ in. | 8 st. 4 lb. |

In all cases measurements were taken in indoor clothes, without boots or shoes.

It will thus be observed that the 200 girls of to-day were an inch taller, upon the average, than their 200 predecessors of 25 years ago. Allowing 3 lb. which I am assured is not excessive, for the difference between the long skirts, heavy petticoats, stays, &c., which were customarily worn 25 years ago, the 200 girls of to-day averaged 9 lb. more in weight than the earlier group.

In so far as these 400 boys and girls may be regarded as representative, and in spite of the fact that all of them spent a part of their infancy in the war years, these comparisons would seem to suggest a very considerable all-round improvement in the physique of young Londoners during the last quarter of a century.

Coming next to the rates of growth and height of present-day boys in Post Office employment in London, a consecutive series of 100 boys, examined at 14, again at 16, and again at 18, gave the following results. Between 14 and 16 the average growth in weight was approximately 2 st. and the average growth in height exactly 5 in. Between 16 and 18 the average growth in weight was 9½ lb. and the average growth in height 1½ in.

### COUNTRY AND TOWN COMPARED.

Thanks to the kindness of its medical officer, I have also been able to compare this series with a similar consecutive series of 100 boys examined at the same ages at a well-known public school in the country. These boys were living and being educated under usual public school conditions. The Post Office boys were performing a 48-hours' week as indoor or outdoor messengers, inclusive of six hours' schooling, but with institutional facilities for games and gymnastic exercises out of working hours. Owing to differences in weighing conditions, an equalising deduction of 3 lb. has been made in the actual weights of the Post Office boys.

*Average height and weight of 100 Public School boys (country) compared with 100 Post Office boys (London).*

*Public School Boys (Country).*

| At 14. | | Same boys at 16. | | Same boys at 18. | |
|---|---|---|---|---|---|
| Wt. | Ht. | Ht. | Wt. | Ht. | Wt. |
| 5 ft. 2 in. .. | 7 st. | 5 ft. 7 in. .. | 9 st. | 5 ft. 9½ in. | 10 st. 4 lb. |

*Post Office Boys (London).*

| At 14. | | Same boys at 16. | | Same boys at 18. | |
|---|---|---|---|---|---|
| Ht. | Wt. | Ht. | Wt. | Ht. | Wt. |
| 5 ft. 2 in .. | 7 st. 3 lb. | 5 ft. 7 in... | 9 st. 2 lb. | 5 ft. 8½ in. | 9 st. 11½ lb. |

From this it will be seen that, while the average actual weight was slightly higher in the Post Office group at 14 and 16, the average height was the same at both ages and the average increase in height and weight between these ages practically identical. Between 16 and 18, however, the public school group forged ahead to the extent to 1 inch in average height and 6½ lb. in average weight. This may possibly be due to the continuance at the public school of a regular régime of work, play, and hours of sleep, less likely to be observed by working boys, over 16, living under metropolitan conditions. Compared with a similar consecutive series, however, of 100 Post Office boys of 18 examined in 1905–1908—i.e., 25 years ago—the present-day Post Office group were upon the average 1½ in. taller and 10½ lb. heavier. Of the earlier series only four were 6 ft. or over, of the present-day series 10 were 6 ft. or over.

Turning to the average rate of growth amongst the present-day girls in Post Office employment, it was found on examining a consecutive series of 100 girls at 14 and again at 16 that their average increase in height between these ages was 1 in. and their average increase in weight 11 lb. Thanks to the kindness of its headmistress, I have also been able to compare this consecutive series with a consecutive series of 100 girls at a well-known public school in the country, with the results shown in the following table. From

this it will be observed that, both in their actual average weights at 14 and 16 and in the rate of increase between these ages, the public school girls, living a largely athletic life in country surroundings, have a marked advantage, putting on 1½ in. and 1 st. between 14 and 16 as against 1 in. and 11 lb in the case of the Post Office girls.

*Average height and weight of 100 Public School girls (country) compared with 100 Post Office girls (London).*

*Public School Girls (Country).*

| At 14. | | Same girls at 16. | |
|---|---|---|---|
| Ht. | Wt. | Ht. | Wt. |
| 5 ft. 2½ in. .. | 7 st. 11 lb. | 5 ft. 4 in. .. | 8 st. 11 lb. |

*Post Office Girls (London).*

| At 14. | | Same girls at 16. | |
|---|---|---|---|
| Ht. | Wt. | Ht. | Wt. |
| 5 ft. 2½ in. .. | 7 st. 6 lb. | 5 ft. 3½ in. .. | 8 st. 3 lb. |

In both series, measurements were taken in indoor clothes without shoes.

It is, of course, admitted that these series are relatively small. But in so far as conclusions may be drawn from them, it would appear that a public school life in the country possesses a definite physical advantage, in the case of the girls, after the age of 14, and in the case of the boys after the age of 16. It would also appear, however, very clearly that the average London boys and girls of to-day are considerably the physical superiors of their counterparts in the last generation.

For permission to publish these notes I am indebted to the secretary and the chief medical officer of the General Post Office, and to Mr. A. K. Chalk and other officers of the London Postal Service and Mr. F. G. Lamb of the Medical Department for their kindly help.

## MEDICINAL PLANTS OF SOUTHERN AFRICA.

Messrs. E. and S. Livingstone (16, Teviot-place, Edinburgh) announce the forthcoming appearance of a work on the plants of Southern Africa, giving an account of their medicinal uses, chemical composition, pharmacological effects and toxicology in man and animal. The specimens number over 2500 and the book, which will contain 300 pages, 18 text illustrations, and 12 coloured plates, is the work of Dr. J. M. Watt, professor of pharmacology in the Witwatersrand University, Johannesburg, assisted by Dr.phil. Maria G. Breyer-Brandwijk, research worker in phytochemistry in the department of pharmacology. The flora of Southern Africa has produced a number of popular remedies many of which are still in common use, but the folk-medicine of the native tribes is vanishing before the advancing tide of civilisation with its synthetic drugs. Although many of the plants are poisonous, precise knowledge is often lacking about their effects, and the authors note the increasing commercial exploitation of these plants, particularly as proprietary and secret remedies. The book is intended to assist the greater utilisation of the natural products of South Africa and to lead to a critical examination of the claims made for any remedies which come on the market. It is offered at a special pre-publication subscription price of 20*s.* post free.

## ENTERTAINMENT AND CHARITY.

"The Black Parrot," a new play in three acts, by H. Fletcher Lee, has been chosen for Mrs. Frank Worthington's special matinée in aid of the Royal Free Hospital and the East London Hospital for Children. The Aldwych Theatre has been given for the production on Thursday, Dec. 10th, by Mr. Wilfred Fletcher. In eight years with these matinées, always bringing out a new play, Mrs. Frank Worthington has cleared £34,974 for different charities.

# Vacancies

*For further information refer to the advertisement columns.*

*All Saints' Hospital for Genito-Urinary Diseases, 91, Finchley-road, N.W.*—H.S. At rate of £150.

*Argyll and Bute Mental Hospital, Lochgilphead.*—Jun. Asst. M.O. £300.

*Birmingham, Dudley-road Hospital.*—Gynæcologist and Obstetrician. £750.

*Birmingham, Queen's Hospital.*—Hon. Surgeon.

*Bradford, Royal Eye and Ear Hospital.*—Jun. H.S. £150.

*Brighton, Royal Sussex County Hospital.*—H.S. £150. Also Cas. H.S. £120.

*Brighton, Sussex Eye Hospital.*—Hon. Clin. Asst.

*British Institute of Radiology, Welbeck-street, W.*—Sub-Editor. £400–£500.

*Burnley, Victoria Hospital.*—Two H.S.'s. Each at rate of £150.

*Cambridge, Addenbrooke's Hospital.*—Res. Anæsthetist and Emergency O. £130.

*Cardiff City Mental Hospital, Whitchurch.*—Sen. Asst. M.O. £570

*Coventry and Warwickshire Hospital.*—Res. House and Asst. H.S.'s. Each £125.

*Dreadnought Hospital, Greenwich.*—Physician.

*East London Hospital for Children, Shadwell, E.*—Res. Med. Reg. £150. Also Second H.P. At rate of £125.

*Edinburgh Royal Infirmary.*—Anæsthetist. £200.

*Hastings, Royal East Sussex Hospital.*—Jun. H.S. At rate of £100.

*Hospital for Epilepsy and Paralysis, Maida Vale, W.*—Clin. Asst. for Ear, Nose and Throat Dept.

*Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.*—Res H.P. At rate of £100. Also Surg. to Ear, Nose, and Throat Dept.

*Hospital for Tropical Diseases, Endsleigh-gardens, W.C.*—Surg.

*Hull, Beverley-road Institution.*—Asst. M.O. £300.

*Indian Medical Service.*—European Officers.

*Ipswich, East Suffolk and Ipswich Hospital.*—Cas. O. £120.

***Khartoum, Wellcome Tropical Research Laboratories.*—Bacteriologist. £E.660.**

*Lewisham Hospital, High-street, Lewisham, S.E.*—H.P. At rate of £80.

*Liverpool and Samaritan Hospital for Women.*—Hon. Asst. Surg.

*Liverpool University and Maternity Hospital.*—Obstetric Asst. £500.

*L.C.C.*—Consulting Laryngologists. Each 200 gns.

*London Jewish Hospital, Stepney Green, E.*—Hon. Asst. Gynæcologist.

*London University.*—Geoffrey Duveen Travelling Studentship in Oto-Rhino-Laryngology. £450.

*Manchester, Ancoats Hospital.*—Part-time Asst. for Pathological Dept. At rate of £200. Also Clin. Asst. for Out-patient Clinic. 10*s.* 6*d.* per attendance.

*Manchester Royal Infirmary.*—Res. M.O. £200.

*Metropolitan, Ear, Nose and Throat Hospital.*—Surgeons.

*Mildmay Mission Hospital, Austin-street, Bethnal Green, E.*—Asst. Cas. O. At rate of £125.

*Miller General Hospital, Greenwich-road, S.E.*—H.P. and 2 H.S.'s. Each at rate of £125.

*Newark General Hospital.*—Res. H.S. £175.

*North-Eastern Fever Hospital, St. Anne's-road, Tottenham, N.*—Asst. M.O. £350.

*North-Western Fever Hospital, Lawn-road, Hampstead, N.W.*—H.P. £80.

*Oxford County and City Mental Hospital, Littlemore, near Oxford.* Deputy Med. Supt. £500.

*Poplar Hospital for Accidents, East India-road, Poplar, E.*—Second Res. O. £175.

*Princess Louise Kensington Hospital for Children, St. Quintin-avenue, North Kensington, W.*—H.S. At rate of £100.

*Reading, Royal Berkshire Hospital.*—H.S. and H.P. Each at rate of £150.

*Rotherham Hospital.*—H.P. £180.

*Royal Free Hospital, Gray's Inn-road, W.C.*—Clin. Assistantships in Spec. Depts.

*Royal Northern Hospital, Holloway, N.*—H.S. At rate of £70.

*Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.*—P.H. At rate of £100.

*St. Mark's Hospital for Cancer, Fistula and Other Diseases of the Rectum, City-road, E.C.*—Hon. Asst. Surgeon.

*St. Mary's Hospital for Women and Children, Plaistow, E.* Hon. Dental Surg.

*St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.*—Hon. Asst. Surg. Also Clin. Assts.

*Salford Royal Hospital.*—H.P. £125.

*Sheffield, Jessop Hospital for Women.*—Asst. H.S. At rate of £100.

*Sheffield Royal Infirmary.*—Ophth. H.S., Asst. Aural and Ophth. H.S., and Asst. Cas. O. Each at rate of £80.

*Southampton, Royal South Hants and Southampton Hospital.*—Two H.S.'s and Cas. O. Each at rate of £150.

*West London Hospital, Hammersmith-road, W.*—H.P. and H.S. to Special Depts. Each at rate of £100.

*Willesden General Hospital, N.W.*—Clin. Assts. for Out-patient Dept.